Fine bakery wares

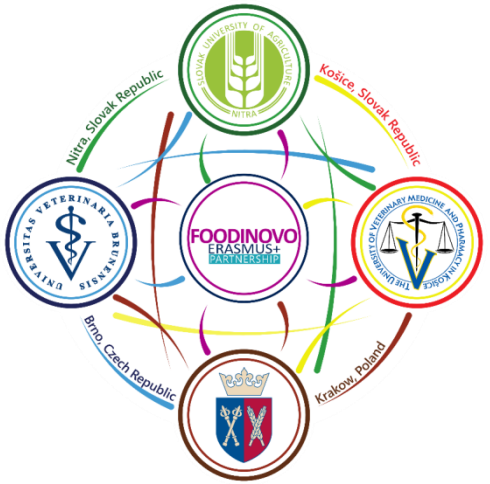
Co-funded by the
Erasmus+ Programme
of the European Union

Fine bakery wares

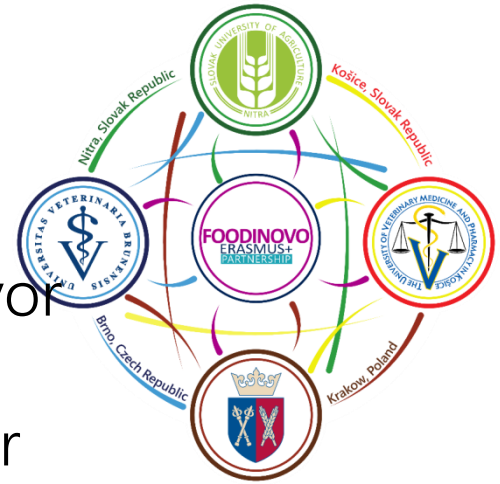
- At least 8 % anhydrous fat or at least 5 % sugar
- Sweet, salty and savoury products
- E.g. Cookies, cakes, muffins, doughnuts, biscuits, rusks, cereal bars, pastries, pies, scones, cornets, wafers, crumpets, pancakes, gingerbread, éclairs, croissants

Raw materials

- Flour
  - Especially wheat flour
- Water
  - Triggers biochemical and chemical processes in the flour
  - Binds flour with other raw materials
  - Starches bind about half their weight in water
  - Wheat proteins can bind up to twice their weight
- Sugar
  - Sweet taste
  - Positive effect on the colour of the product
  - Refined sugar, glucose syrup, high-fructose corn syrup, invert sugar



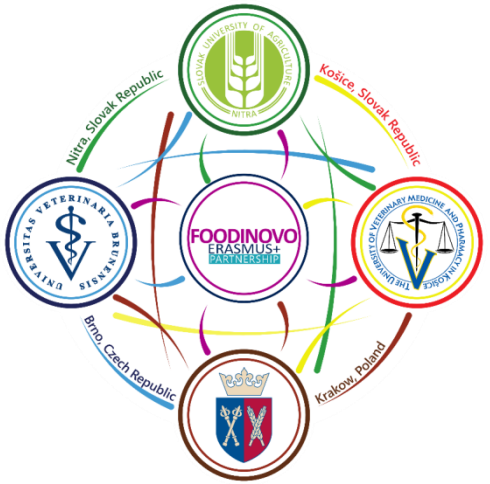
- Fats
  - Margarine, Butter, Plant Oil, …
  - Extension of product shelf life
  - Improve the elasticity and strength of doughs
  - Improve the aroma and taste of products
  - Positive effect on porosity
  - Slow down the fermentation of doughs
  - Increase the energy value of products



- Eggs and egg products
  - Increase the nutritional value, extending shelf life, soften the flavor
  - Egg whites - help set the structure
  - Egg yolks - good emulsifiers, have a positive effect on the colour and on the softness of the crumb
- Salt
  - The taste of the products, the formation of gluten structure, accelerates the colouring of the crust
- Diary products (milk, Cottage, whey, buttermilk)
  - Positive effect on sensory quality, product color,volume and crumb softness, increase the nutritional value
- Others (cacao, raisin, nuts, honey, spice, …)
- Yeast

Improvement agents

- Enzymes
  - Balancing flour quality (depends on wheat quality)
- Emulsifiers
  - Form or stabilise an emulsion
  - Egg or soy lecithin
- Oxidizing and reducing agents
  - Oxidizing agent
    - Oxidation of thiol groups (S-H bonds) → formation of S-S bonds => the dough is strengthen
  - Reducing agents
    - They break the bonds in the gluten structure and thus the gluten becomes extensible
    - Disappear S-S bonds → formation of sulphydryl or thiol groups (S-H bonds)



- Hydrocolloids
  - Thickening and stabilising effects
  - Plant - gum arabic, pectin, guar gum, gum tragacanth
    - seaweed - alginate, carrageenan, agar
  - Animal - gelatine, caseinates
  - Microbial - xathan gum
  - Synthetic - modified starches

Yeast

- *Saccharomyces cerevisiae Hansen*
- Glucose → ethanol + carbon dioxide
- Types:
  - Cream yeast
  - Compressed yeast
  - Active dry yeast

Types of leavening agents

- Physical or mechanical leavening agent
  - Air, steam, creaming, whipping or whisking
- Biological leavening agent
  - Yeast, sourdough starter
- Chemical leavening agent
  - Sodium Bicarbonate (Baking Soda)
  - Ammonium Bicarbonate
  - Baking Powders
  - Cream of Tartar
  - Monocalcium Phosphates
  - Sodium Acid Pyrophosphates

Kolach, Kolacky *(AmE)*

- The straight-dough method or the sponge-and-dough method
- Fillings – Walnut, Poppy seed, Plum butter, Cottage cheese, jams
- Decoration – almonds, raisins or Crumble topping (mixture of flour, fat (butter) and sugar - 2:1:1 or 3:2:2)
- Egg wash before baking
  - Egg white, fat – matt appearance of products
  - Whole egg, yolk – shine appearance of products

Technology

- Making the dough → proofing → cutting and shaping → fillings → proofing → egg wash → baking (10-240 °C, 8-15 minutes)
- PGI: Valašský frgál (CZE)

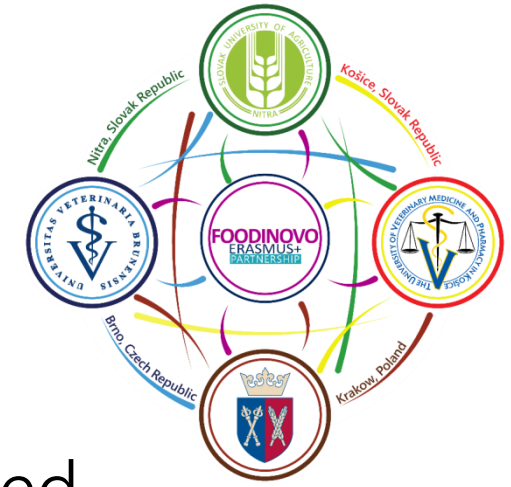
Braided sweet bread/Easter sweat bread

- Similar raw materials as kolaches dough
- The dough has a stiffer consistency than kolaches dough
- Braided bread has more weight than kolaches, so it is baked at a lower temperature for a longer time

- Braided sweet bread is a typical Christmas pastry in the Czech Republic

- A similar type of pastry, but with a different shape, is the Easter sweat bread. It is traditionally baked in the Czech Republic at Easter.

Technology



- Make a dough → the dough is divided into 6 parts → a strand is formed from each part → the strands are braided into the characteristic shape → proofing→ egg wash (decoration with almonds) → baking (170-190 °C, 35-45 min)

Doughnuts

- Fried bakery products
- In the Czech Republic, they are traditionally filled with jam and the surface is sugared
- Abroad, doughnuts are ring-shaped, withou filling and covered with chocolate or icing

- White ring around donuts - while frying one side of the doughnut the volume increases slightly and therefore the other side does not sink to the same depth of oil

Doughnut technology

Making the dough
- Flour, water, yiest,fat,eggs, (rum)

Proofing
- 20-30 min

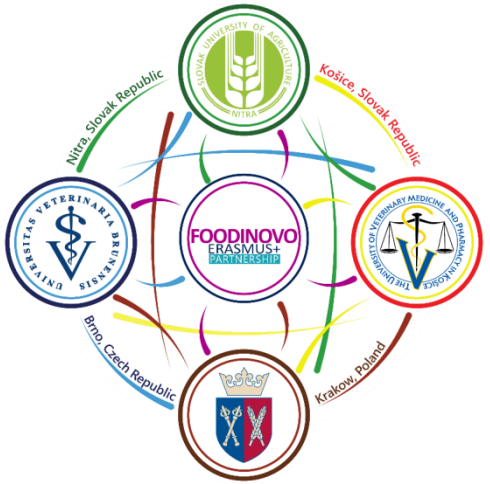
Cutting and shaping

Proofing
- 30-45 min
- 30-32 °C

Frying
- 170-180 °C
- 2-3 min. on each side
- Palm oil

Coating
- Sugar water glazé
- Rolled in sugar
- Filling with jam
- Decorating

Laminated Dough



- Crispy and very delicious
- Typical is alternating layers of dough and fat
- During baking the water in the dough turns to steam → separation of single layers
- <u>Three types:</u>
  - Puff Pastry dough
  - Croissant dough
  - Danish dough

Puff pastry

- Puff pastry can contain 30% or more fat
- Raw materials: flour, salt, water, fat and vinegar (vinegar relax the gluten, thus improving the ease of rolling)
- The English, the French and the Scottish method
- E.g. Sausage rolls, pies, rolls

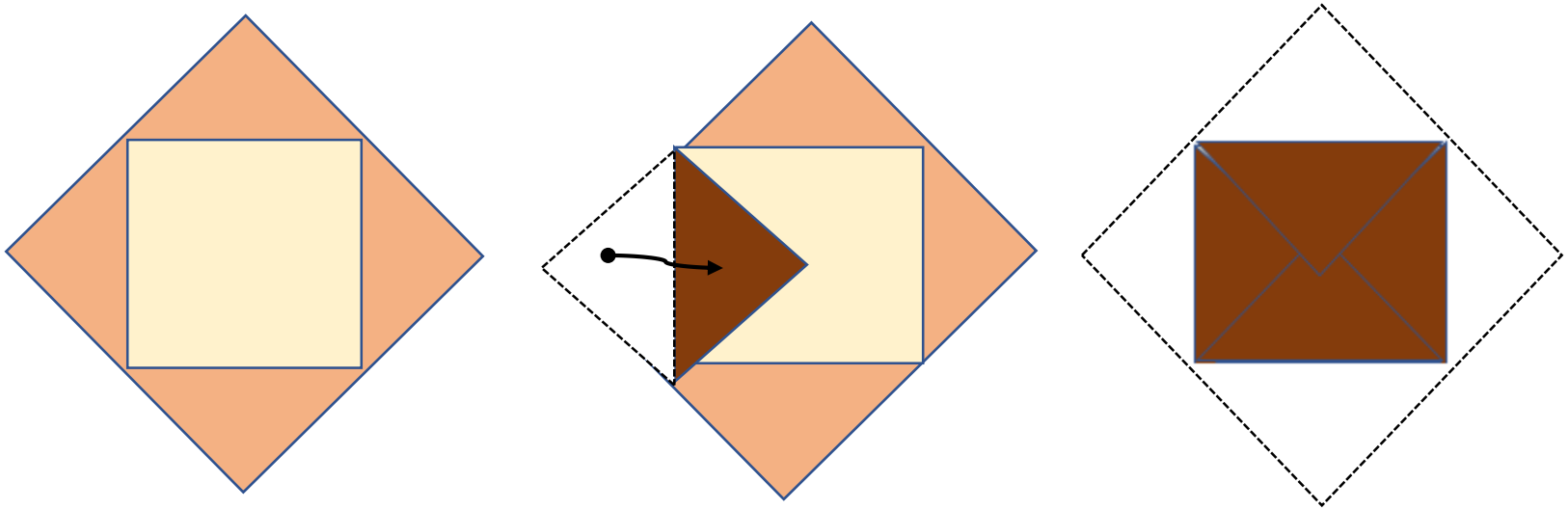
- PGI: Antep Baklavası (TUR)

Technology

- Dough I.: flour, a portion of fat, water, acid, and eggs → the dough is mixed well → the dough is rolled
- Dough II.: fat + flour (or only fat without flour)

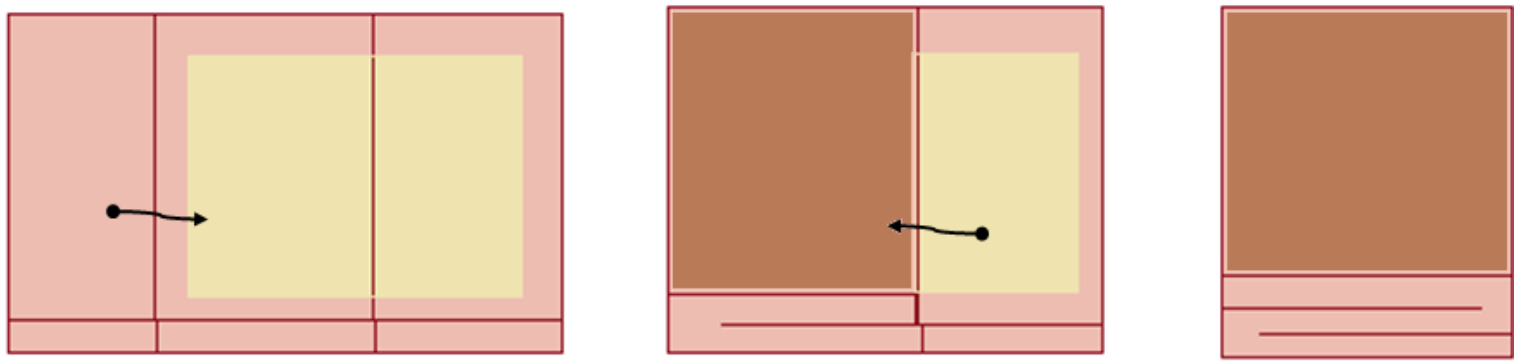
The French method

- The dough I is rolled into a rectangle → the dough II. (fat) is placed on the dough I. → Dough I wraps dough II to form a "pocket"

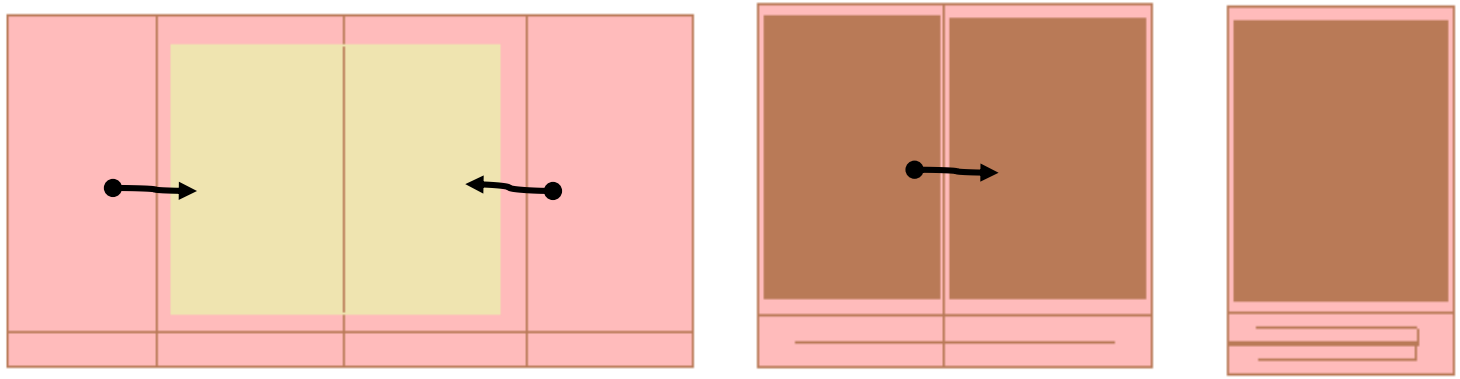


The English method

- The dough I is rolled into a rectangle → fat is spread uniformly over two-thirds/one-half of the area
- Single fold



- Doble fold



The Scottish method

- The fat is cut into small cubes of about 20 mm sides
- It is a fairly quicker method

Technology

Preparation of the dough I.

Preparation of the dough II./ margarine

Rolling and folding (3x)

Cuting and shaping

Aplication egg and Baking

Croissant dough

- Type od laminated pasters
- Dough I. - yeast-leavened dough
- Dough II.: fat + flour (or only fat without flour)
- Raw materials: flour, salt, water, fat yeast, sugar and eggs

- E.g. Croissants
- PGI: Rogal świętomarciński (Pol)

Croissant technology

Preparation of the dough I. → Proofing of dough I → Preparation of the dough II./ margarine → Rolling and folding (3x) → Cuting and shaping → Filling → Aplication egg and Baking

- Cronuts
  - Made from croissant dough and fried like doughnuts
  - Filled with cream

- Cruffins
  - Made from croissant dough in a muffin mould
  - Filled with cream or jams

Danish pastry

- Similar to croissant dough
- Dough I. - Yeast-leavened dough layer
  - The dough is mixed cold around 16-18 °C
- Dough II. – fat (butter or margarine)
- Sweet filings - nuts, cinnamon, fruit purée with or without creme patissier

Choux pastry (Pâte à Choux)

- Fluid consistency of the dough
- Raw materials: fat, flour, salt, water, eggs
- Filling – cream, caramel cream, custard

- Characteristic dough preparation - roasting the dough (the starch swells and gelatinises → increase the ability of flour to bind water) → cooling the dough → the eggs are beaten into the dough

- E.g. Profiterole, Éclairs, Croquenbouche

Water+ fat+salt+flour

Roasting

Cooling the dough

+ Eggs

Whisking

Shaping

Baking

Cutting a Cooling

Filling

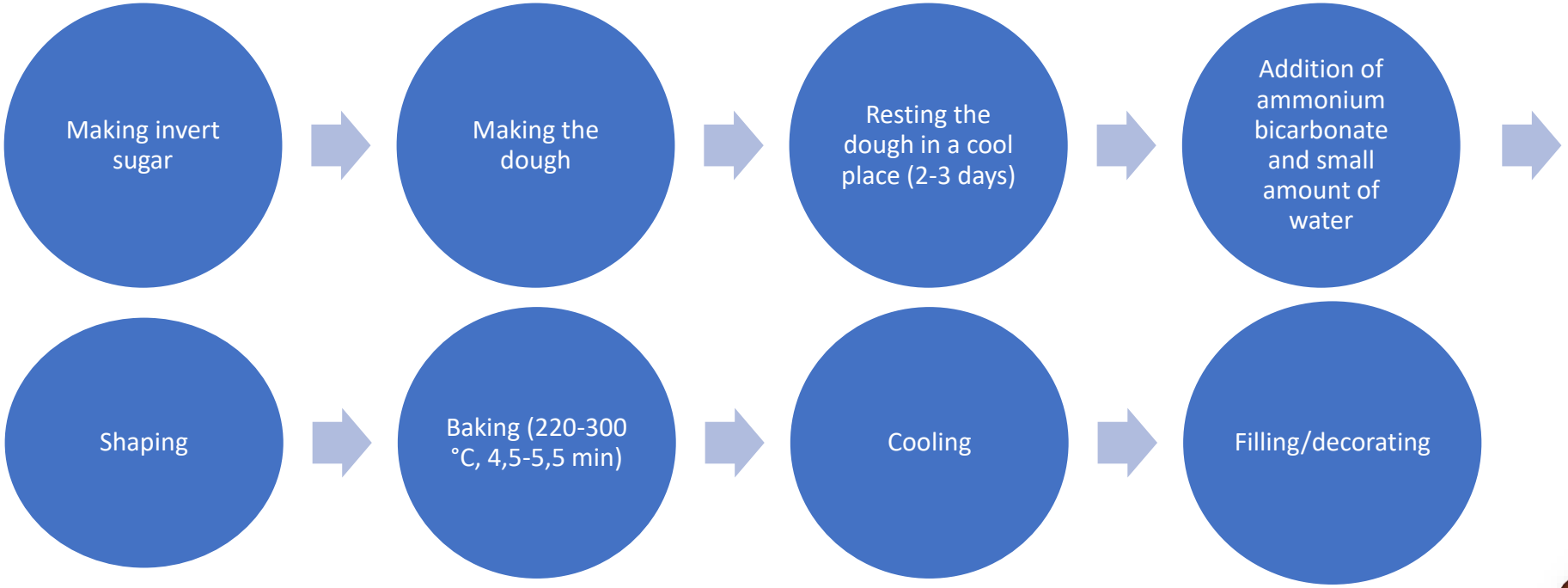
Coating

Gingerbread

- Durable pastry made of chemically leavened dough sweetened with honey, flavoured with spices

- Raw materials: wheat flour, fat, egg, sugar (invert sugar), honey, ammonium bicarbonate, baking soda, spice (pepper, anise, cloves, pimento, star anise, cinnamon, coriander seed)

Gingerbread technology



Gingerbread

- PGI:
  - Pardubický perník (CZE)
  - Nürnberger Lebkuchen(GER)
  - Aachener Printen (GER)

- Other famous products similar to gingerbread:
  - Toruńskie Pierniki (POL)
  - Tula pryanik (RUS)
  - Pepparkakor (SWE)
  - Pain d'épices (FRA)
  - Panforte Di Siena (ITA)

Lye pastry

- Distinctive dark brown color of crust
- Sodium hydroxide promotes hydrolytic processes
- The dark colour is due to the Maillard reaction
- Raw materials: low protein soft wheat flour, water (38-42 %), yeast (0,25 %), fat (1 %), salt (1 %), dry malt (1 %)

Mixing

- Low protein soft wheat flour
- Water (38-42 %)
- Yeast 0,25 %
- Fat 1 %,
- Salt 1 %,
- Dry malt 1 %

Proofing

- Up to 4 hours

Dividing

Rolling

- Rolling in to a small strands

Shaping

- Shaping into pretzel shape

Alkaline bath

- Concentration of NaOH is 3-6 % for 3-5 sec.

Covering with salt

Baking

- 230 °C for 4-5 min

- Pretzels, rolls, pretzels stick
- PGI: Bayerische Breze (GER)

Biscuits

- Raw materials:
  - Wheat, oat, barley, rye or rice flour
    - Biscuits flours - low protein content and low starch damage
  - Fat or shortening, sugar, water, eggs, dry milk, ammonium bicarbonate and baking soda (1:1)
- The low moisture content - long shelflife
- Low risk of spoilage by microorganisms

Wafers

- Thin, crisp and precisely shaped products
- The low moisture content - long shelflife
- Low risk of spoilage by microorganisms
- Wheat flour, low fat, low sugar
- A very fluid dough is baked between heavy hot plates
- Form of sheets, cones orsticks
- Fillings or coatings

- PGI:
  - Ricciarelli di Siena (ITA)
  - Andruty kaliskie (POL)
  - Karlovarské oplatky (CZE)
  - Karlovarské trojhránky (CZE)
  - Hořické trubičky (CZE)
  - Mariánskolázeňské oplatky (CZE)
  - Torró d'Agramunt (ESP)

Cakes

- Wide and diverse product group
- Influenced by various trends
- Common is sponge base or whipped egg whites. However, other types of dough can also be used.
- Decorating with nuts, chocolate, fruit, jam, whipped cream or cottage cheese
- The most famous cakes include Sachertorte, Pavlova, Black Forest cake, Honey cake, Red Velvet, Dobos torte, Charlotte

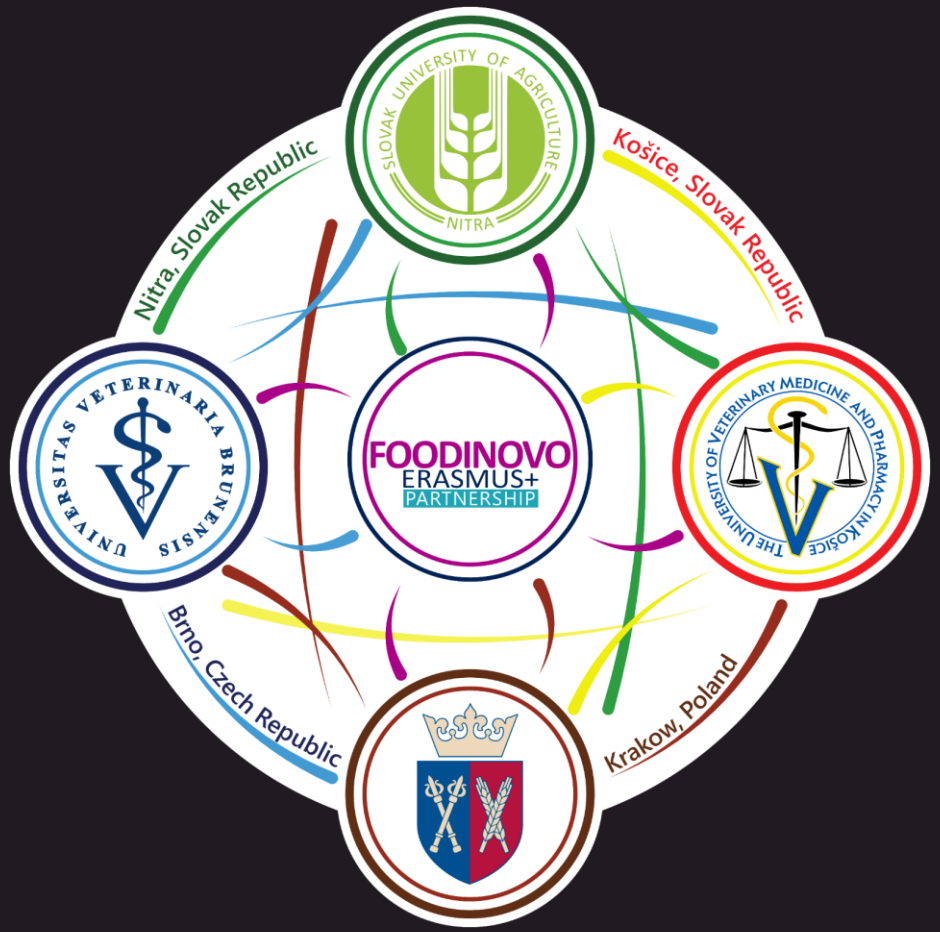
This work was co-funded by the Erasmus+ Programme of the European Union

Innovation of the structure and content of study programs profiling food study fields with a view to digitizing teaching

Táto publikácia bola spolufinancovaná programom Európskej Únie Erasmus+

Inovácia štruktúry a obsahového zamerania študijných programov profilujúcich potravinárske študijné odbory s ohľadom na digitalizáciu výučby

FOODINOVO | 2020-1-SK01-KA203-078333



Co-funded by the Erasmus+ Programme of the European Union

Co-funded by the Erasmus+ Programme of the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

Financované Európskou úniou. Vyjadrené názory a postoje sú názormi a vyhláseniami autora(-ov) a nemusia nevyhnutne odrážať názory a stanoviská Európskej únie alebo Európskej výkonnej agentúry pre vzdelávanie a kultúru (EACEA). Európska únia ani EACEA za ne nepreberajú žiadnu zodpovednosť.

FOODINOVO | 2020-1-SK01-KA203-078333