



# EXPORT POTENTIAL

OF THE CZECH TRADITIONAL  
AGRI-FOOD PRODUCTS



MINISTRY OF AGRICULTURE  
OF THE CZECH REPUBLIC



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A still life photograph featuring dairy products. In the background, a large glass pitcher is filled with milk. To the left, a small white bowl contains cottage cheese. In the foreground, a white plate holds several blocks of butter. The entire scene is set on a light-colored wooden surface.

# I. Dairy products





## I.I. Butter

Butter used to be made by manual churning of cream in the so called butter churns, mostly wooden, where by turning the handle the wooden paddles churned the butter. Even though at present the churns are replaced by top-notch modern technology, the principle behind the production remains virtually the same. The basic raw material for butter production is cream with the fat content of approximately 40 %. Butter shall contain at least 80 % of milk fat and no more than 16 % of water.

The Czech butter is remarkable for its unmistakable taste and smell, it is easy to spread and does not contain any preservatives or emulsifiers. It adds unique aroma to your meals and it also gives the name to some dishes. It is easy to digest and it is a rich source of vitamin A. It meets the requirements of gluten-free diet. Thanks to its composition, butter is suitable especially for cold meals, but it can also be used to make bakery products, sauces, des-

serts, etc. Popular are also flavoured butters such as herb butter or slightly salted butter.

Outside the EU countries, in 2015 the butter exports went mainly to Lebanon, USA, Bosnia and Hercegovina and Uzbekistan, and reached 114 thousand tonnes of the 2015 total production, which amounted to almost 30 thousand tonnes of butter.

Currently, there are five large butter-producing dairy plants in the Czech Republic that have the capacity to satisfy any requirements of a demanding customer. Apart from these five plants, there are also a number of smaller dairies in the Czech Republic.

All these businesses comply with the requirements of the HACCP system that guarantees the safety of food and meals throughout all the activities of manufacturing, processing, storing, handling, transporting and selling to the end consumer.

## 1.2. Milk powder, cream and whey

The Czech Republic has a long tradition of milk powder, cream and whey production. Thanks to dehydration these commodities have a long shelf-life. The range of products can be extended by alternatives attractive to consumers, such as products with diverse fat content, manifold flavours or package sizes.

Milk powder and cream are used in the processing industry for example as a constituent in biscuits or in various confectionery products.

In recent years the dry whey exports have been increasing, namely to the non-EU countries such as Malaysia, Thailand, Bangladesh or Philippines. It is a raw material for industrial processing as well as a partial, less expensive milk substitute.

Whey, however, is not only a milk substitute. In beverage industry, its gel-forming and wa-

ter-retention properties (the so called “juice effect”) are exploited. The confectionery and bakery production benefits from its supply of lactose, i.e. the milk sugar. In baking industry, it improves dough proofing. In wafer and chocolate production it prevents drying out, replaces the more expensive powdered milk, and improves the taste. In ice-cream production it enhances the whipping ability. As an admixture in feed mixtures it increases their digestibility. It also plays an important role in healthy diet. In dry whey production, water evaporates and milk sugar, proteins and mineral substances concentrate. Another important constituent are essential amino acids that the human body cannot produce.

Thanks to their structure these dry products are a suitable commodity to transport and handle.



## 1.3. Cheese

The history of cheese processing in the territory of the Czech Republic began as early as in the 10<sup>th</sup> century when simple cottage cheese was made at homes. The 19<sup>th</sup> and 20<sup>th</sup> centuries witnessed a major boom with the launch of production of new sorts of cheese inspired by French, Swiss or Dutch traditions. The number of private cheese factories grew and cheeses like Camembert, Brie or Roquefort were introduced to the market. As a consequence of 1948 events the smaller businesses ceased to exist and production was moved mainly to state enterprises, where the development of this craft and variety of assortment suffered.

Today, however, the cheese industry in the Czech Republic has reached the top level and year on year the portfolio of products has been expanding, offering ever more interesting cheeses of higher quality, made not only of cow milk, but also goat and sheep cheeses. It represents one of the fastest growing markets, primarily thanks to the rising popularity of dairy products and the Western style of eating.

The Czech Republic produces lots of cheese types: white mould cheeses, blue cheeses, double mould cheeses, ripened cheeses, steamed cheeses, firm, semi-firm, soft, process cheeses or various special cheeses such as Akawi cheese. Also organic cheeses are now commonplace. The names of three types of Czech cheeses have even been entered EU register of Protected Geographical Indications – Olomoucké tvarůžky, Jihočeská zlatá niva and Jihočeská Niva.

Olomoucké tvarůžky cheese is a Moravian ripened cheese, coming in the form of small wheels. It has a unique pungent flavour, distinctive strong aroma, golden-yellowish ripe layer and amber core, soft to semi-soft consistency. Olomoucké tvarůžky taste best on a slice of fresh buttered bread. They can also be used for cooking – e.g. fried or used as a filling in meat dishes. Since the cheese is made of fat-free quark, Olomoucké tvarůžky rank among the very low-calorie cheeses.





The mould cheese called Niva resembles the French Roquefort. This semi-soft cheese of cream to yellowish colour with light to dark green mould throughout the inside is, contrary to Roquefort, made of cow milk, not the sheep milk. The taste of this cheese is distinctive, strong and salty. The mould gives Niva cheese a specific piquancy. In hot meals Niva can be used for example with pasta, potatoes, vegetables, but also poultry and pork meat.

Another very popular cheese is Hermelín, a soft ripened cheese with a coating of white mould, the Czech alternative to the famous French Camembert. It is of a round shape, delicate mushroom-like taste and flexible creamy consistency. In catering, Hermelín marinated in oil with other ingredients or grilled Hermelín have become popular.

The Czech cheeses go perfectly with Moravian wines or typical Czech beer!

## I.4. UHT milk

The history of milk production and processing in the territory of the Czech Republic is proven by the archaeological finds. In Middle Ages the names of numerous settlements were linked to milk production, e.g. Mlékojedy, Syrovátka, Zákřaví. The oldest industrial dairy in Bohemia was the steam milk plant in Hostivice founded in 1870.

The Czech milk production is synonymous with high quality. High technologies safeguarding the top quality and health safety are used in the production of milk as a raw material, its treatment and processing. The requirements for safe food production are stipulated by the harmonised EU legislation and the compliance therewith in the Czech Republic is under the stringent supervision of inspection bodies. Approximately 2.6 billion litres of milk (2015) is produced in the Czech Republic, of which roughly 600 million litres of drinking milk were processed.

The drinking milk placed in the market shall always be heat treated in order to guarantee its health safety. One of the methods is the so called UHT (ultra-high temperature) treatment. It is a short-time heating to temperature above 135 °C for at least 1 second, by which all the unwanted microorganisms are removed. Thanks to the UHT treatment milk and similar products can be stored for the period of several months in the original



packaging, usually a box, at ambient temperature. And this long shelf-life is its key advantage for exports. Offered are all kinds of milk – low-fat, semi-skimmed and whole milk.

Milk intended for further partial processing is exported in large-capacity tankers, meeting all the veterinary and sanitary requirements. Milk for direct sale is then packed exclusively in beverage cartons, mostly for one litre of milk.



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## 2. Beverages

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## 2.1. Mineral waters

The Czech Republic is considered to be a world power and one of the world's largest producers of mineral waters. Thanks to its diverse geology profile, the territory of the Czech Republic avails of all kinds of mineral waters: thermal, with a high or low mineral content, natural and saturated with carbon dioxide, including specific mineral waters with healing effects. Some springs are located in the depth of up to 100 meters under the surface (e.g. in Doupovské Mountains), such depth guarantees that the water is protected against any contamination since the layers of rock work as a natural filter.

Mineral water has a strong positive effect on human health, it contains iodine, potassium, calcium, magnesium or hydrogen sulphide.

Ranking among the waters with a high mineral content and a proven healing effect is e.g. Vincentka, Šaratica or Zaječická. In accordance with the Czech legislation, the mineral water is not allowed to be chemically treated in any way during the bottling and its quality is strictly supervised by laboratories.

Thanks to a large number of mineral and healing springs, the Czech Republic has a long-lasting tradition of spas, renown worldwide. More than thirty spas have been established in our territory, offering the treatment of a wide portfolio of diseases.



## 2.2. Beer

There are only a few products associated with the Czech Republic so closely as the Czech beer. It is shown also by the world's highest beer consumption per person in the Czech Republic, namely 144 l/person. In the Republic the beer even has its own "beer patron" – Saint Wenceslaus. Beer production and the brewing right in the Czech Lands has a long lasting tradition and the Czech beer is one of the most famous beers in the world. The first reference to the brewing of Czech beer is linked with the Břevnov Monastery and dates back to the year 993. The history of the existing Czech breweries is up to 150 years long.

České pivo has been entered in the EU Register of Protected Geographical Indications which is a guarantee of quality local raw materials and technological procedures. Only top quality domestic varieties of hops are used for beer production. The most important variety of Czech hop is Žatecký polorný červeňák (Saaz semi-early red-bine hop) grown in the Saaz hop growing area, which is also registered as the Protected Designation

of Origins in the EU. An essential component of beer is also the traditional malt from selected barley varieties grown exclusively in the Czech territory.

In the Czech Republic 90 % of production is constituted by the Pilsener (Pils) beer, which is a prototype of the world category of light lager. In recent years the beer assortment has been expanded by non-traditional types of beer – e.g. wheat, unfiltered, fruit beers, etc. Beer in the Czech Republic is produced by 48 businesses with a high production capacity and by approximately 280 mini breweries. The beer production volume in 2015 totalled 20.076 million hectolitres, which is the largest volume of brewed beer in the history of Czech breweries.



## 2.3. Herb liqueurs and spirits

Even though the Czech Republic is famous primarily for its excellent beer and quality Moravian wine, also a number of other alcoholic drinks popular even far beyond the Czech borders is produced here. The production and export of Czech brand herb liqueurs and fruit spirits has also a long lasting tradition in the Czech Republic, which guarantees the use of purely natural raw materials and the top quality of products.



The spirits are obtained through the distillation of the pomace which is made of crushed fruits or other parts of plants. Brandy obtains its distinctive aroma from the fruit or the raw material used in its fabrication. Some kinds of brandy are stored in oak casks, which give the spirit the colour and partly also the taste. The volume of alcohol ranges from 36 to 50 %. A higher alcohol content is undesirable since it affects the taste and smell of the spirit.

Thanks to the varied structure of Czech orchards, the offer of fruit spirits is very rich. Ranking among the main fruit spirits are slivovitz (plum brandy), pear brandy, apricot brandy or cherry brandy. Produced are also non-traditional spirits such as raspberry brandy, strawberry brandy, chequers brandy, wild sloe brandy, etc. The Czech producers make also kosher spirits.

Apart from fruit distillates the Czech Republic offers also world-famous herb liqueurs of well-known trademarks. The alcohol by volume puts the liqueurs somewhere between the dessert wines and spirits. They mostly contain 20–40 % of alcohol, but some of them even more than 50 %. Liqueurs are made by infusing herbs, spices or other aromatic substances in water or spirit, with subsequent addition of sugar.

One of the traditional Czech herb liqueur is e.g. Becherovka. It has been produced ever since 1807 and contains more than 20 different herbs. It is exported to all the continents, except for Antarctica. Another herb liqueur, well-liked because of its typical bitterness is Fernet Stock. It has been produced in Pilsen for almost ninety years. It is made of locally grown herbs, but also herbs from Cameroon, Indonesia and Pyrenees.

Indispensable are *Gentianae radix* (root of *Gentiana lutea*), cinchona bark, centaury tops, or Roman chamomile. Another example of an alcoholic drink, closely connected to the Czech lands for dozens of centuries, is mead. As its Czech name suggests, it is a drink made of honey and it is very sweet. It is often consumed hot.

All the products are manufactured with the use of advanced technologies, which help maintain the typical aroma and taste of herbs and fruits. The exact recipes of herb liqueurs naturally remain a strictly protected trade secret.

## 2.4. Wine

The art of wine making in the Czech Republic is passed down from generation to generation. Czech wine growers and makers regularly receive prominent international awards for the quality of wine and also thanks to that the Czech Republic ranks among the top European producers.

There are two main wine growing areas in the Czech Republic – Bohemia wine region and Moravia wine region, each of which has its own sub-regions. The natural conditions of our wine growing areas are a prerequisite for wines of exquisite quality consisting in their spicy fullness and delicate aromatic substances. White wines are typical for their fresh acids, while the red wines, conversely, are full bodied and distinctive, but smooth and velvety and with an excellent pleasant fruity smell. Apart from pleasant taste they

are characterised also by their higher content of health-benefiting natural substances (e.g. flavonoids that are important antioxidants, or tannins that prevent any bacterial infections of the gastro-intestinal tract).

Wine growers in the Czech Republic are also successful in grapevine breeding. The varieties bred exclusively in the Czech Republic are e.g. – Agni, André, Ariana, Cabernet Moravia, Moravian Muscat (Muškát moravský), Neronet, Rubinet or Pálava. The village of Přímětice in the south of Moravia is the location of the world's largest wine cellar in the shape of a cross.

Currently, the vineyards in the Czech Republic cover 19 thousand hectares, mostly in Moravia. Roughly 75% of the total Czech wine production is exported.











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### 3. Bakery and confectionary production

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## 3.1. Cereals and healthy food

The tradition of production of cereals in the Czech Republic is more than 50 years long and there are currently 8 Czech businesses producing 50 000 tonnes of cereals.

These products undoubtedly benefit from a wide range of possibilities to create specific nutritional profiles of products, a high added value, the possibility of organic or gluten-free alternatives of products, and their suitable for consumers of all age and physical activity categories. It is a top quality, varied and variable assortment in terms of raw materials and technology, which is in accord with the current trend, the healthy eating.

The products are manufactured with the use of advanced technologies and are microbiologically safe. The products most in demand by consumers are for example crispy müsli bars and müsli cereals, müsli biscuits, corn flakes and whole grain flakes, oatmeals, extruded cereal products, puffed (especially rice) snacks, or cereal products for children.

High quality, health safety and inspection of products are ensured through ISO, HACCP and the BRC certification granted by the British Retail Consortium (BRC). A number of products of this group bears the Klasa quality and origin label. Thanks to the favourable value to weight ratio the products are successfully exported.



## 3.2. Chocolate and non-chocolate confectionery

The Czech production offers a wide range of chocolate and non-chocolate confectionery and thanks to its quality and reasonable prices it is fully competitive in the foreign markets.

Non-chocolate confectionery includes mainly candies, dragees and jelly sweets. The Czech producers can offer a broad portfolio of these products in multiple categories, both traditional and non-traditional candies – hard, soft, gummy or fruit, mint, sour, etc. The businesses are owned by the world's top food processing companies, which use the original traditional Czech recipes in the manufacturing.

A large spectrum of types and shapes of chocolate, bars and other products produced by renown companies in the Czech Republic guarantees the satisfied consumer of all age categories. These are products

of unmistakeable taste, made according to proprietary original recipes. The packaging technology offers a wide portfolio of quality packaging material such as boxes, bags, cans or jars.



## 3.3. Wafers and pastry

The Czech Republic can pride itself on regional production of a broad range of bakery products, traditional kinds of wafers and biscuits in particular. By improving the manufacturing procedures, technologies and input raw materials also the assortment of filled and decorated bakery products has been extending, and thus can respond to the requirements of a growing consumer community.

Manifold Czech products in this field have been entered in the Register of the Protected Geographical Indication of the EU – Štramberské uši, Karlovarský suchar, Hořické trubičky, Lomnické suchary, Pardubický perník, Mariánskolázeňské oplatky, Karlovarské trojhránky, Karlovarské oplatky and Valašský frgál. Belonging to the traditional

Czech biscuits are undoubtedly also e.g. Ta-tranky, Horalky, Kávenky biscuits and many more similar crispy wafers with filling.

The export of these products has seen a steep rise in recent years, namely both to the EU market and other countries of the world.







## 3.4. Pectin

Pectin is a highly sophisticated stabiliser which adds unique functional properties to food. It is now made from lemon and orange peels, while in the past it used to be made also from apple pulp. It has a gel forming effect in fruit products (preserves, marmalades, jellies or syrups) and in confectionery products. Its application does not affect the taste of the used fruit, while helping achieve an excellent consistency of the product. Its attributes are exploited also in dairy industry, namely in the manufacturing of fermented milk products, it also protects the proteins in milk drinks with low pH and

make yoghurts thicker. Last but not least, it is added to soft drinks to accentuate the clear and refreshing taste.

Pectin has also a positive effect on human health thanks to its capacity to bind cholesterol and majority of heavy metals (such as cobalt, mercury or lead) and carry them out of the body. It also helps the human body absorb vitamin C.

In the Czech Republic a few dozens of types of esterified pectins are produced and majority of the Czech production is exported.



## 3.5. Starch and dextrin

Production of native potato starch in the today's territory of the Czech Republic dates back to the mid 19<sup>th</sup> century, when starch was made from potatoes at large farms as a non-farming activity.

Potato starch is a food product of multiple use and it is largely processed into modified starches for paper industry and into dextrin which is obtained by heating (roasting) of dry starch. It is an ingredient of neutral taste and colour that can have an effect on the appearance, consistency, energy content, functional and

nutritional properties, shelf-life of products, or improve the manufacturing processes of food products. Manufacturing technologies in the Czech Republic are fully automated and highly advanced. A quality management system based on the ISO standards has been in place in the Czech Republic for many years.

Nowadays, potato starch is produced by a total of three big businesses in the Czech Republic, exporting their products mainly to China, Russia, Belarus, Ukraine or Kazakhstan.









## 4. Plant products





## 4.1. Hops

Hop growing has over a thousand year-long tradition in our country. The first references to growing hops in the territory of the current Czech Republic date back to the year 859. Hop growing in the Czech Lands was substantially expanded thanks to the Emperor Charles IV.

Hop is a perennial plant that can live up to 30 years. Extraordinary climate and soil conditions contribute to the unique aroma of Czech hops. Hop is, apart from malt and water, the basic brewer's raw material that contributes to the final quality of beer. Hops give beer its typical bitter taste, influence its characteristic aroma and exhibit other important technological properties. For a half-litre of beer, you need 3-4 hop cones.

The Czech Republic is the world's largest producer of fine aroma hops. In terms of the acreage and production, it is the second lar-

gest producer in the EU, after Germany, and the third worldwide.

The Czech Republic as the first EU Member State succeeded in getting the *Protected Designation of Origin* registered in the sector of hop cultivation, namely Žatecký chmel. This was one of the first indications of a Czech agricultural or food product registered. It covers only the fine aroma hops called Saaz semi-early red-bine hop grown in the Saaz hop growing area, which at the same time is the dominant variety grown in our country. The Saaz hop (Žatecký chmel) continues to be the most recognised aroma hop worldwide.

In hop sector, the exports exceed the imports. Over 80 % of hop production is exported, the exports of hops reach the value of CZK 0.75 – 1 billion. The Czech hop is subject to the system of certification that guarantees the hop's origin and quality. At present, 120 businesses are involved in hop production.



## 4.2. Caraway

The Czech Republic avails of the suitable conditions specific for caraway growing, consisting in soil composition and natural conditions together with the tradition since long-lasting experience with caraway growing is irreplaceable. By volume of production and the area under this crop the caraway every year belongs to the most grown spice in the Czech Republic. The Protected Designation of Origin Český kmín was registered in the EU in 2008. On average, 50 % of Czech production is exported every year.

Thanks to the introduction of three key caraway varieties (Rekord, Prochan and Kepron) the Czech Republic has become an important exporter of this spice. These three varieties represent a unique portfolio of high performing, quality and non-deciduous varieties with a high



essence content and favourable carvone content, which has positive effects on digestion.

Caraway is frequently added particularly to dough in bakery for its typical aroma, but is also used in canning industry, liqueur making, pharmacy and many other branches of food industry.

## 4.3. Poppy seed

The Czech Republic is the world's largest producer and exporter of legally produced poppy seed for food processing, namely not only because the tradition of poppy seed growing in the Czech Lands is longer than one thousand years! Cultivated is almost exclusively the traditional blue poppy seed for its extraordinary tasteful oily seeds. Apart from this variety, also white and ochre poppy seeds with a mild nutty flavour are grown. The white poppy seed, which represents only a marginal proportion of production, is exported mainly to India.

Poppy seed is an important food in national cuisines, mainly of Slavic and neighbouring Central European countries.

The quality standards applied to the trade in poppy seed for food processing coming from the Czech Republic virtually exclude any health risks. The Czech inspection bodies pay lots of attention to these standards and carry

out inspections in order to prevent the sale of a lower quality poppy seed obtained from plants cultivated for pharmaceutical purposes, which contain alkaloids such as morphine, codeine, etc. Typical of the Czech poppy seed is its high content of dietary components, its high content of calcium is also of major benefit.



## 4.4. Grass and vegetables seeds

The cultivation of vegetable and grasses with the subsequent production of seeds is one of the successful and traditional branches of the Czech plant production, with over a hundred year-long tradition during which many national and international business relations were established. It is also thanks to suitable soil and weather conditions in the Czech Republic. Vegetable is grown on the most fertile soils called chernozem, which covers 11% of agricultural land in the Czech Republic and contains humus of the highest quality. Grasses, contrarily, require the soil type called cambisol, constituting 42% of agricultural land in the Czech Republic. Cambisols are extremely varied in terms of mineral content of the soil.

Vegetable and grass seeds can be easily exported abroad since there are no specific

requirements for their transport, except for dry conditions. The Czech Republic can offer a sophisticated seed production technology and advisory services. Vegetable and grass seeds come from recognised seed collection zones in the Czech Republic and their quality is verified by certification.

For more convenient sowing, the seeds are packed not only traditionally in pouches, but also in the form of seed tapes, plates or boards. Fine seeds can be enlarged by a wrap. Thus, tiny seeds become medium sized seeds which are easier to handle. Seeds are treated mainly to prevent soil-borne fungal diseases. This information is always stated on the packaging. Treated seeds are also better protected during transport and thus, diseases caused by inappropriate conditions are prevented.





## 4.5. Malt

Malt production in Bohemia, Moravia and Silesia has a thousand year-long history. Beer and malt have been produced in our country ever since early Middle Ages. The tradition of malt production ensues from favourable soil and weather conditions of barley growing areas, outstanding standard of barley cultivation and it is one of the main pillars of the tradition of Czech brewing industry.

The vastest areas under malting barley are located at Haná, where purposeful cultivation of malting barley began in 1870s. The basic raw material for the brewer's malt production is spring barley. The Czech production fully covers the consumption.

The malt constitutes a large share of export of products of agriculture and food industry.

The Czech Republic ranks among the main exporters of malt in the EU (the 5<sup>th</sup> place). In total, the Czech malt is exported to 47 countries of the world, roughly a half of the domestic production of malt is exported. As concerns the types of malt, over 95 % is the Czech malt (light Czech or Pilsen malt). The most frequently grown international varieties of malting barley are Sebastian and Prestige, the most popular varieties recommended for Czech beer are Malz and Bojos.

A total of 28 domestic malthouses produced approximately 544 thousand tonnes of malt in 2015, of which 45 % was exported abroad. The most advanced production technologies guarantee the minimum environmental impact.









## 5. Animal production

## 5.1. Poultry and hatching eggs

The poultry meat consumption has consistently shown an upward trend worldwide, namely both for the reason of its short cooking times, favourable dietary properties, and the price. Related thereto is the production of hatching eggs and the trade in breeding stock.

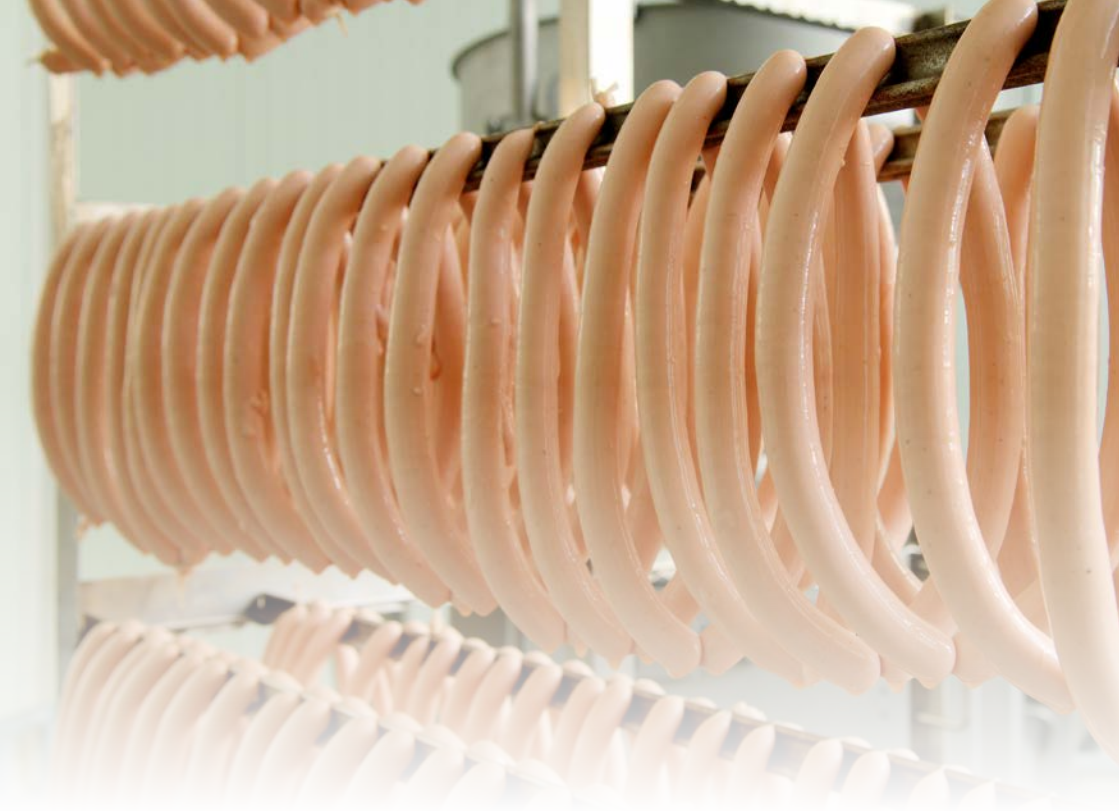
Poultry farming belongs to the traditional industries in the Czech Republic and the accomplished results are comparable to those of the most advanced countries in the world. The most widespread kept poultry in the Czech Republic are chickens. They are followed by less frequent turkey, duck, goose and guinea fowl farms.

A significant branch of poultry farming is hatchery flocks producing the hatching eggs for broiler fattening. The hatchery flocks focusing on the production of broiler hatching eggs have been in place in the Czech Republic for more than 50 years.

Except for the ensurance of optimal temperature, the transport of hatching eggs does not require any special conditions since the hatching of chicks itself takes place in the country of export destination. Production of quality hatching eggs necessitates top quality management of parent stocks and trouble-free health conditions, which are fully met by the Czech farms. There are now 70 businesses in the Czech Republic that produce roughly 400 million of hatching eggs annually.







## 5.2. Collagen casings

Thanks to the application of a sophisticated manufacturing process, the latest technologies and high requirements for all the production processes, the Czech Republic is a leading and traditional producer of a wide range of quality collagen casings.

Edible collagen casings were developed in 1953 by a Czech company, which was their first producer worldwide. Collagen casings have been traditionally fabricated from curium layer of selected split cattle hides and are used as food packaging for meat, poultry and dairy products. Collagen casings are a natural alternative to and substitute for natural casings and enable such solutions and alternatives that are absolutely out of the question where the natural casings are used. The choice of raw materials and the whole

manufacturing process are under constant sanitary and veterinary supervision.

A broad assortment makes it possible to identify an optimal solution for every product, in terms of weight, and length of the casings or the type of the stuffing machine. Offered are collagen casings for products that are not heat treated – intended for subsequent grilling or barbecuing as well as for heat treated products, lightly smoked or steamed products. The casings are very well smoke and steam permeable and well take colour by smoking.

Together with the Czech beer, the collagen casings are exported on a long-term basis to the highest number of countries, including the remote countries in the Caribbean and Pacific regions or in Africa.

## 5.3. Meat cans and pâtés

The canned food industry has a hundred-year-long tradition. Cans serve as ready-to-eat food that can be used on various occasions for fast and easy preparation of dishes at home or anywhere else. Apart from conventional meat products, the Czech Republic can also offer deli meat spreads and pâtés, processed according to traditional Czech recipes.

The producers of meat cans and related products in the Czech Republic are local large and renown companies with the tradition of producing quality canned meat and meat specialties. They offer a varied assortment of top quality products. The canned meat products are sterilised, which, when properly done, guarantees their long shelf life. Thanks to this gentle treatment the original taste and quality of food is preserved, with no need to add any preservatives or colouring agents.

Preparation, transport and storage of sterilised food is less energy-intensive than any other forms of preservation.

In the Czech Republic canned meat of various types are produced – pork, beef, chicken or turkey. As concerns less common cans intended mostly for exports, very tasty are especially the canned smoked meat products (e.g. Prague Ham, Frankfurters). Popular are also the ready-to-eat canned meals, which usually contain different offals in a sauce (e.g. goulash or headcheese).

Even though the Czech Republic is not fully self-sufficient in pork meat production, products with a higher added value made of this raw material are successfully exported.







## 5.4. Cattle for breeding and bull semen

Cattle breeding has a long lasting tradition in the Czech Republic, one of the first associations for performance testing was set up in the territory of the current Czech Republic. The exports are nowadays dominated by breeding stock of our national Czech Fleckvieh breed of cattle. It is a part of the world population of Fleckvieh breeds of the identical phylogenetic origin. The Czech Fleckvieh cattle is valued for production of the highest quality milk and high yield of quality meat with distinct taste, suitable for all forms of technological use. Currently, the Czech Fleckvieh cattle constitutes about a half of the to-

tal cattle population in the Czech Republic. Since 2010 the animals coming from the original pure Czech lines have been protected as a genetic source.

Breeding material is exported both in the form of live breeding animals (breeding bulls, high-pregnant heifers) and in the form of insemination doses or embryos. The Czech Republic takes pride in its high level of veterinary and sanitary standards that ensure safety for customers. As concerns the performance testing system, the Czech Republic is among the best in the world.



## 5.5. Pet and farm animal nutrition

The trend of keeping pet animals was strongly accelerating in the last decade worldwide. Despite the customers' growing requirements and demands for quality and variety of pet food and farm animal nutrition, the Czech producers thanks to many years of experience in this field are able to promptly respond to the current requirements of the changing market.

The Czech market produces nutrition in line with the requirements of keepers and recommendations of veterinarians. It is either dry food, in the form of granules or pellets,

or cans, or ever more popular pouches. Pet food production focuses mainly on dogs, cats and to a lesser degree also on rodents. In the farm animal sector, complete food is most often produced for cattle and pigs. The latest equipment and machinery is used in manufacturing in order to ensure high quality of processing and health safety of the final product. Only the raw materials of the highest quality are used. The result is the top quality and balanced complete nutrition comparable to the world's top pet food products, but at more reasonable prices.

## 5.6. Aquarium fish

The tradition of fish keeping in the Czech Republic is more than a hundred years old. Aquarium, the first fishkeeping association, was founded in Prague in 1899 and soon the establishment of many other associations followed, which exist until now. Over that period of time the Czech keepers learnt to breed and raise huge amounts of even the most demanding fish species, and thus rightfully belong to the world's fishkeeping powers. The Czech Republic is now the largest exporter of aquarium fish in Europe. Their only competitors in the world are the countries of Southeast Asia, Singapore and Malaysia in particular.

The most in-demand are fish such as characins, guppies (millionfish), molly fish or barbs. Becoming popular are also e.g. cichlids from the African lakes, discus fish (*Symphysodon* sp.) or freshwater shrimps, crabs or halibuts.

Quite common are also marine fish species originating exclusively from fish breeding facilities. Aquarium fish are permanently kept under controlled conditions of recirculation systems. For several generations these animals have been adapted to artificial living conditions. They better cope with stress during handling, they are healthy and fit, which helps reduce the losses.

There are approximately 20 large capacity businesses operating in the Czech market in the field of aquarium fish keeping and a hundred of smaller companies. Aquarium fish from the Czech Republic have been domesticated for many years, they are resistant to transport and accustomed to aquarium life. The export of aquarium fish is subject to licence. For transport, special insulated transporting boxes are used, ensuring the optimal temperature throughout the transport.



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