



Feed market potential

Overview of feed market

Zaiga Ozolina, Kurzeme Planning Region

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Table of contents

Introduction of Feed Market	3
Livestock Market	5
Insect Meal	9
Conclusion	10
Figure 1 Use of feed materials by the EU-28 feed industry in 2014 (source: FEFAC)	4
Figure 2 Livestock in Europe million heads, 1961-2014 (FAO, 2017)	5
Figure 3 Meat production by country in Europe, million tonnes in 2014 (FAO, 2017)	6
Figure 4 Meat production 1961-2014, million tonnes (FAO, 2017)	7
Figure 5 Shares of hen eggs producers, working around the Baltic Sea, in 2014 (FAO, 2017)	7
Figure 6 Share of chicken meat producers working around the Baltic Sea region, in 2014 (FAO, 2017)	8
Figure 7 Share of turkey meat producers working around the Baltic Sea, in 2014 (FAO, 2017)	8
Figure 8 Poultry, Swine and Insect feed market million USD, prognosis of poultry and swine is set by Zion Research and insect feed – by Global market insights Inc.	10

Introduction of Feed Market

The European compound feed industry employs over 110000 persons on approximately 4000 production sites often in rural areas, which offer few other employment opportunities. Farm animals in the EU 28 consume an estimated 478 million tonnes of feed a year, of which about 30% (156 million tonnes) are produced by compound feed manufacturers. The turnover of the European compound feed industry was an estimate of €55 billion in 2015.¹

Specialty Feed Ingredients comprise feed additives and functional feed ingredients. Mixtures of specialty feed ingredients comprise premixtures and complementary feed, including dietetic complementary feed, which contains speciality, feed ingredients. Feed additives are substances, micro organisms or preparations which are intentionally added to feed or water in order to perform one or more of the functions described in Article 5 of Regulation 1831/2003/EC, on additives for use in animal nutrition. All feed additives placed on the market in the European Union must be approved under the auspices of the Regulation (EC) No 1831/2003.²

Feed is the major cost factor for the livestock farmers, e.g. representing up to 85 % of the production cost for poultry. Farm animals in the EU-27 consume an estimated 467 million tonnes of feed a year, of which 150 million tonnes are produced by the compound feed manufacturers (the worldwide compound feed production amounts to 700 million tonnes). The compound feed production of the EU-27 in 2008, 150 million tonnes, can be broken down to mainly pig feed (35%), feed for broilers and laying hens (33%) and cattle feed (25%). The remaining is constituted of milk replacers (1%) and feed for other livestock (7%). The European feed industry is valorizing a very significant number of by-products from the food and biofuel industry. An average compound feed formula constitutes of 40 % of these by-products (by-product is biofuel industry not specifically mentioned). On top of that, livestock farmers use approximately 228 million tonnes of forage and 89 million tonnes of feed materials (home-grown cereals or purchased feed materials).³

Animal feeding plays a leading role in the global food industry and feed is the largest and most important component to ensure the sustainable production of safe and affordable animal proteins.⁴ According to the International Feed Industry Federation feed (hereinafter – IFIF) production will reach 1 billion tonnes in 2015. Total volume of produced feed estimates 375 billion EUR.⁵

In 2015 feed market increased by 2% comparing with the previous year.

Feed industry market has developed due to food requires and due to increasing demand of high-quality product. Safe feed products enable farms to ensure food safety, reduce production costs, maintain or increase food quality and consistency and enhance animal

¹ <http://www.fefac.eu/file.pdf?FileID=68933&CacheMode=Fresh>

² <https://www.fefana.org/our-industry-products.html>

³ <http://www.eufetec.eu/FeedIndustry.aspx>

⁴ http://www.fao.org/ag/againfo/home/en/news_archive/2015_FAO_and_the_animal_feed_industry.html

⁵ <http://www.ifif.org/pages/t/Global+feed+production>

health and welfare by providing adequate nutrition at every stage of growth and production. They also can reduce the potential for pollution from animal wastes by providing only necessary amounts of highly bio-available dietary nutrients.⁶

According to the International Feed Industry Federation (hereinafter – IFIF) publication, main market players are working in China 19%, USA 17%, Europe 16%, and 48% of rest of the world. This information shows that Europe is playing important role in the world market.⁷ Europe market is analysed below more detailed.

The European Feed Manufacturers' Federation (hereinafter - FEFAC) was founded in 1959 by five national compound feed associations from France, Belgium, Germany, Italy and the Netherlands.

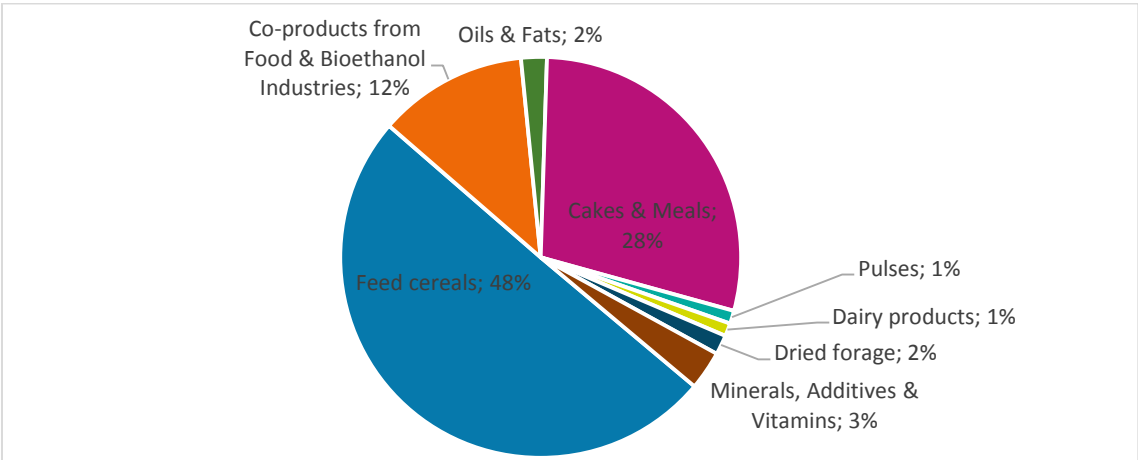


Figure 1 Use of feed materials by the EU-28 feed industry in 2014 (source: FEFAC)⁸

Main position of feed material is feed cereals 48%. Increase nutrient efficiency has reduced the losses of animals.

The global poultry feed market is expected to grow from \$182.5 Billion in 2013, to \$220 Billion market by 2020, growing at a CAGR of 2.7% during the forecast period.⁹

The global swine feed additives market generated a value of \$4419 million in 2012 and is expected to grow at a CAGR of 5.5% by 2018.¹⁰

To analyse feed market there will be analysed market of livestock.

⁶ <http://www.fao.org/docrep/012/i1379e/i1379e.pdf>
⁷ <http://ifif.org/pages/t/Global+feed+production>
⁸ <http://www.fefac.eu/files/67546.pdf>
⁹ <http://www.businesswire.com/news/home/20160225006321/en/Global-Poultry-Feed-Market---Expected-Reach>
¹⁰ <https://www.thestreet.com/story/12876622/1/swine-pig-feed-market-by-type-starter-grower-sow-additive-antibiotics-vitamins-antioxidants-amino-acids-feed-enzymes-feed-acidifiers-and-by-geography--global-trends-forecasts-to-2018.html>

Livestock Market

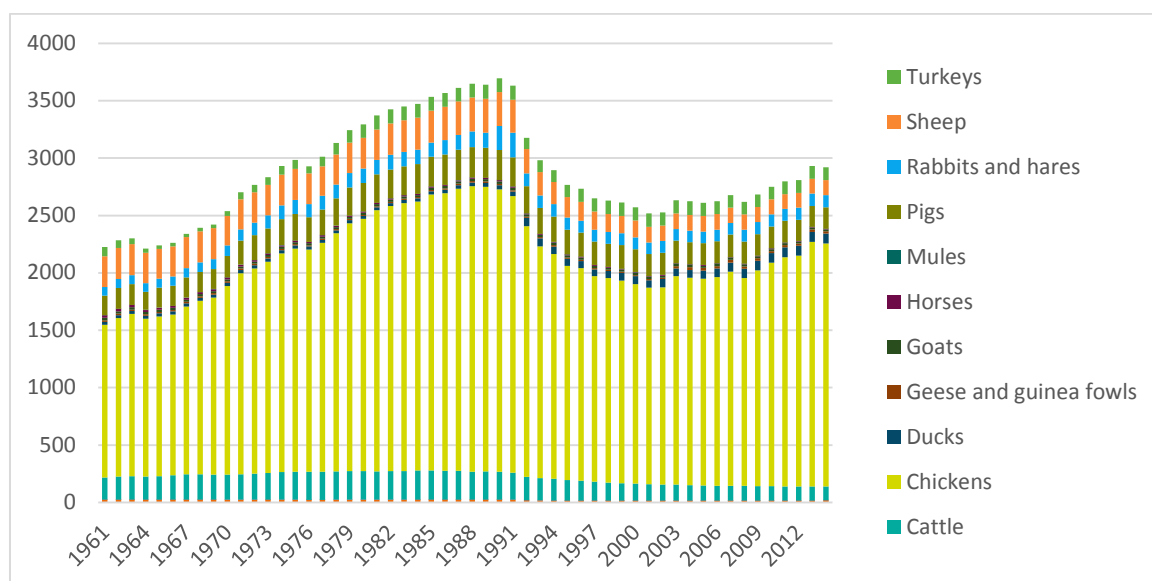


Figure 2 Livestock in Europe million heads, 1961-2014 (FAO, 2017)

The volumes of chicken have grown by years and in 2014 they exceed 72% of total amount. Pig forms 6%, sheep – 4.5%, cattle - 4.2%, turkey - 3.8% of total amount in 2014.

In last 10% the amount of chicken increased by 1.6% per year, the amount of pigs reduced by 0.3%, the sheep amount decreased by 0.6%, cattle – decreased by 1%, and turkey – reduced by 0.7%.

Main poultry producers are based in¹¹:

- France - LDC – 370 million chicken (also working in Spain and Poland);
- The Netherland - *Plukon Food Group* 354 million birds
- Germany - *PHW group* 350 million birds (working in Poland (*Drobimex*) as well)
- Italy - *Agricola Italiana Alimentare* - 350 million birds, 1 billion eggs
- The United Kingdom - *2 Sisters Food Group* – 317 million birds annually

In Europe the largest egg producers are¹²:

- Ukraine – *Avangardco* 18.6 million layers, 3.4 billion eggs in 2015¹³
- France – *Avril Group* – 10 million birds in 2014
- Ukraine - *Ovostar Union* – 4.5 million layers; 1 billion eggs in 2014
- *The United Kingdom - Noble Foods* – 4 million layers in 2014
- *Ukraine - Sinyavskaya Poultry Farm* – 3.6 million birds in 2014

¹¹ <http://www.wattagnet.com/articles/25398-the---largest-poultry-egg-producers-in-europe>

¹² <http://www.wattagnet.com/articles/25398-the---largest-poultry-egg-producers-in-europe>

¹³ <http://avangardco.ua/en/>

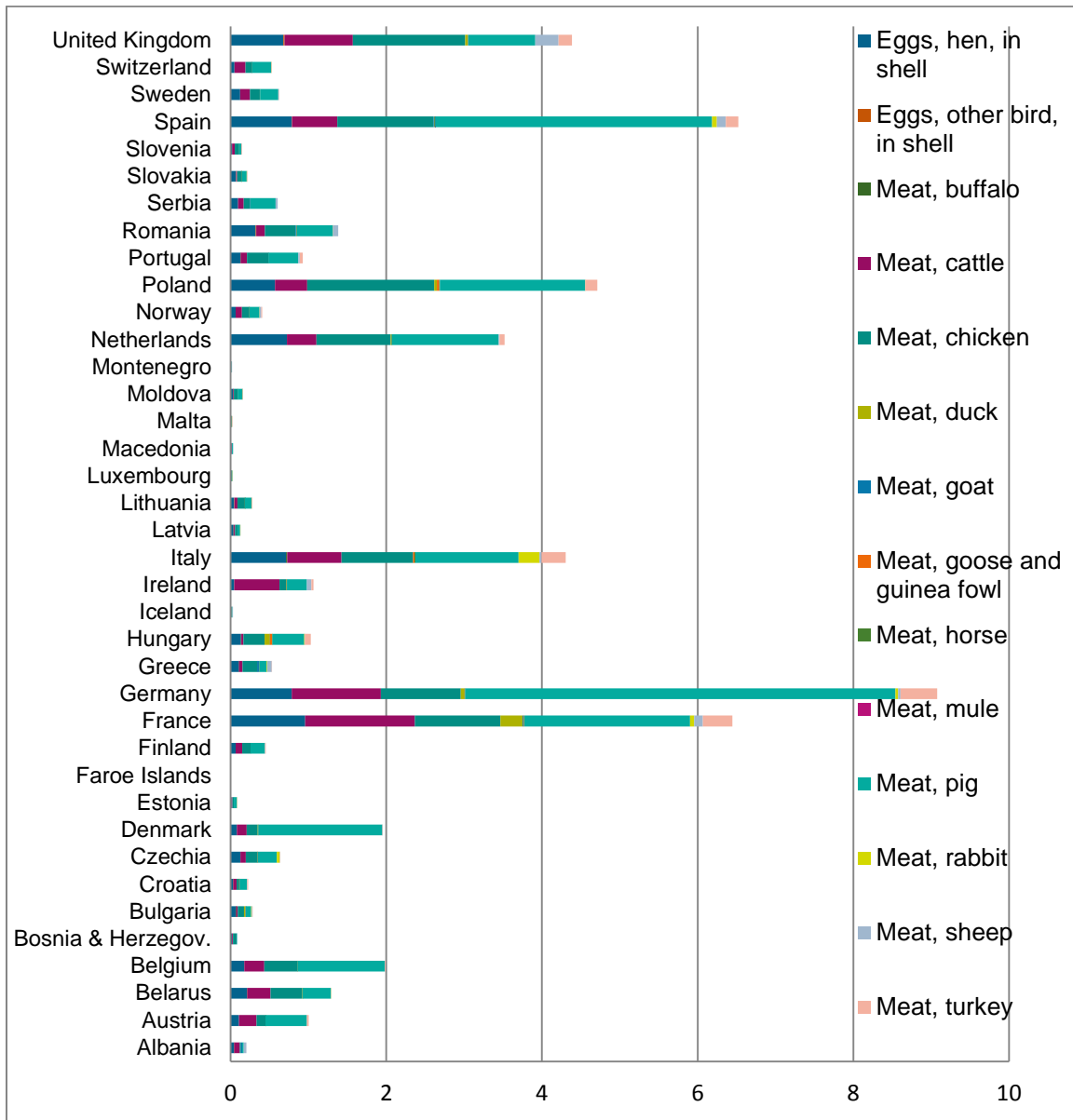


Figure 3 Meat production by country in Europe, million tonnes in 2014 (FAO, 2017)

Main meat producers are from Germany 15% of total amount, Spain 11%, France 11%, Poland 8%, the United Kingdom- 7.5% in Europe.

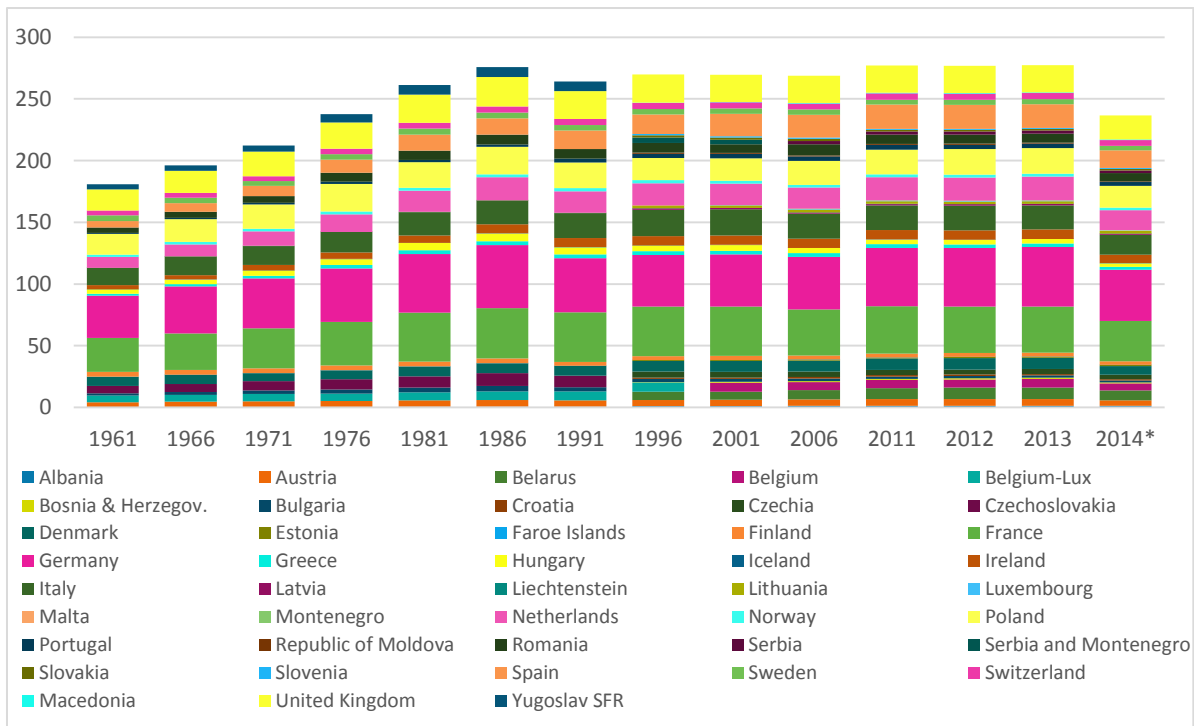


Figure 4 Meat production 1961-2014, million tonnes (FAO, 2017)

* In 2014 part of countries have not submitted some numbers. Meat production in last 20 years had not changed very much.

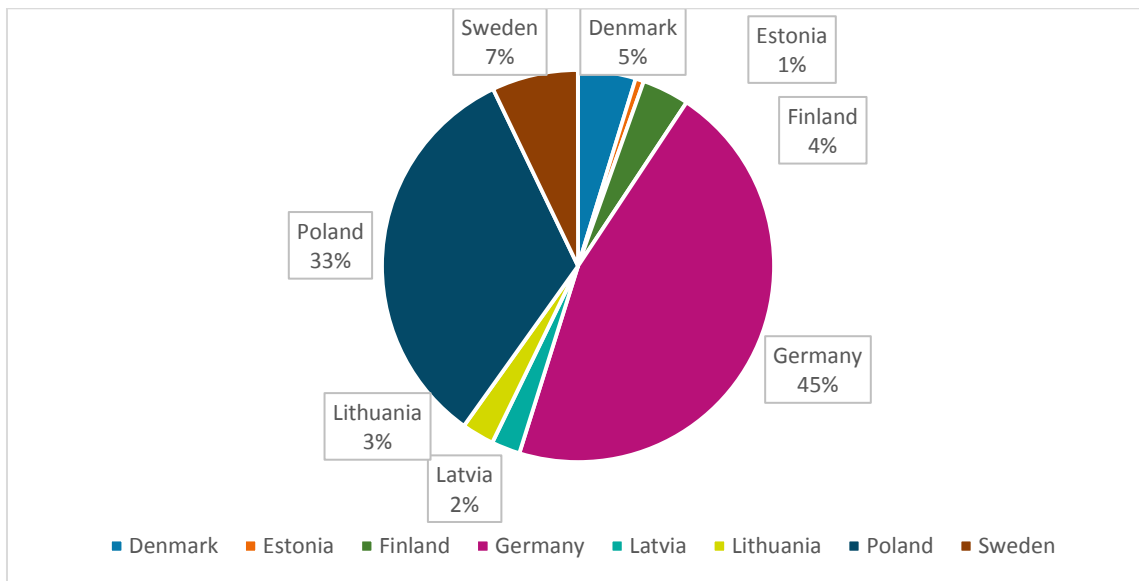


Figure 5 Shares of hen eggs producers, working around the Baltic Sea, in 2014 (FAO, 2017)

Germany (10%) and Poland (8%) are playing important role in Europe (the Federation of Russia is excluded from analysis) in context by producing hen eggs in the shell. Comparing countries, which are located in the Baltic Sea, Germany and Poland together are leading almost 80% of its market, and Sweden 7%, Denmark 5%, Finland 4%, Lithuania 3%, Latvia 2% and Estonia 1%.

Several surveys (in Latvia, Estonia, Lithuania¹⁴, in the United Kingdom¹⁵) have shown that inhabitant prefers to buy local eggs.

Main chicken meat producers are from Poland, UK, Spain, France and Germany.

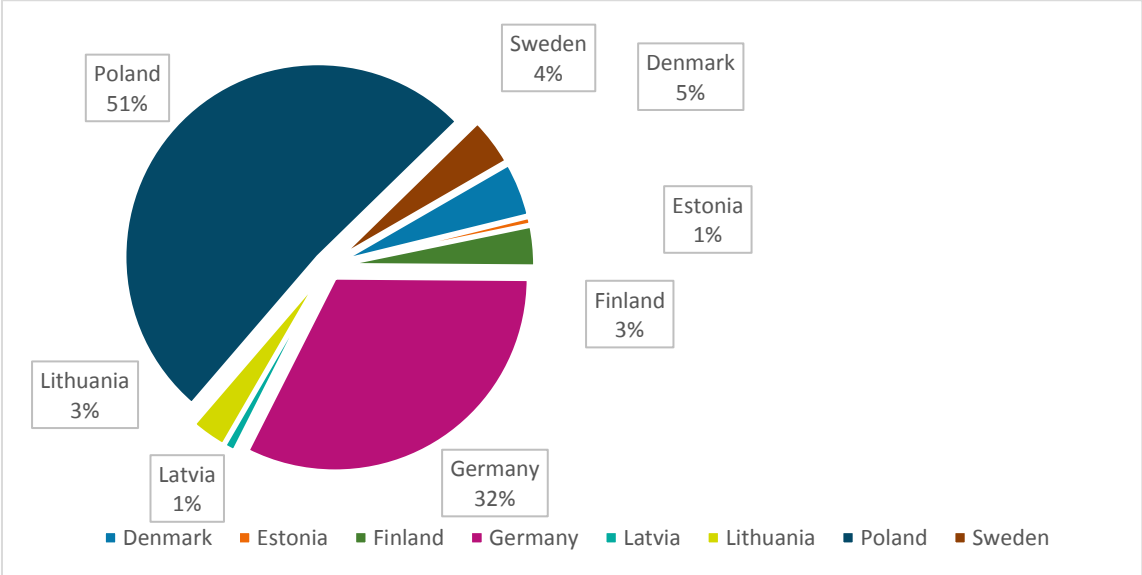


Figure 6 Share of chicken meat producers working around the Baltic Sea region, in 2014 (FAO, 2017)

Market players of chicken meat, which are located in the Baltic Sea, are working mainly in Poland and Germany.

Duck meat mostly produces in France 54%, but Germany produces 9% and Poland -7%.

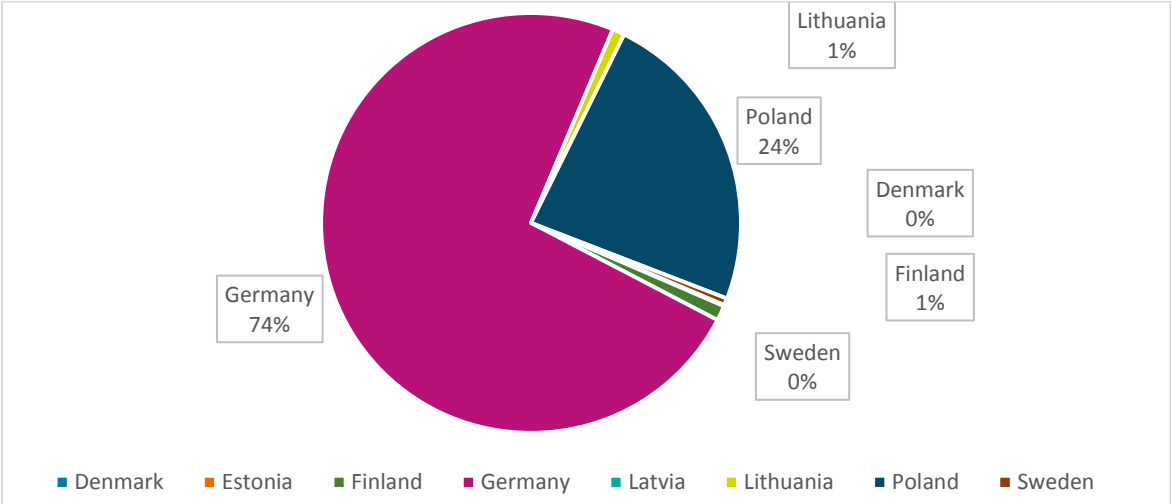


Figure 7 Share of turkey meat producers working around the Baltic Sea, in 2014 (FAO, 2017)

In 2014 turkey meat were produced in Germany 24%, France 20%, Italy 16%, UK 9%, Spain 8%, Poland 8%.

¹⁴ <http://m.zz.lv/biznesa-zinas/citas-zinas/aptauja-baltijas-iedzivotaji-labpratak-izvelas-vietejo-maizi-pienu-galu-un-olas-3689>
¹⁵ <https://www.gov.uk/government/news/people-want-to-buy-healthy-local-food-survey-shows>

In 2014, there are not numbers about turkey meat in Estonia and Latvia, but this market is led by Germany and Poland.

In 2014 in the countries which are located in the Baltic Sea were produced 1.7 million tonnes of eggs (in shell), 3.2 million tonnes of chicken meat, 9.6 million tonnes of pig meat, 0.6 million tonnes of turkey meat, total amount of meat were 17 million tonnes (23 % of total Europe market).

In last years the industry has been suffered from diseases, like chicken flu and swine flu, that increase import of meat countries, which suffered from diseases

Insect Meal

FAO estimates that production will have to increase by 70 per cent to be able to feed the world in 2050, with meat outputs (poultry, pork and beef) expected to double (IFIF, 2012). Insects have a similar market to fishmeal; they are employed as feed in aquaculture and livestock and also used in the pet industry. Recent high demand and consequent high prices for fishmeal, together with increasing production pressure on aquaculture, has led to research into the development of insect proteins for aquaculture and livestock (which could eventually supplement fishmeal). Meanwhile, aquaculture is growing and fishmeal is declining rapidly as a source of feed, because of decreased supplies of industrially caught fish due to tighter quotas, additional controls on unregulated fishing, and greater use of more cost-effective dietary fishmeal substitutes (FAO, 2012b).¹⁶

Insects are used as source for poultry, fish and pig. For example, poultry picks the worms from soil, and wild pig dig worms in soil.

In some countries insects are used for years. Most common insect is bees in Northern Europe.

In the end of 2015 the European Food Safety Authority published its first risk assessment on the use of insects for human and animal consumption.¹⁷ And in the end of 2016 European Commission voted to open aquaculture feed market for insect derived protein from July 2017.¹⁸ Such activities has been linked with FAO publications about increase of population and shortage of feed.¹⁹

Outside the Europe in last 10 years several companies have been established which already produce insect meal, like AgriProtein.

In 2016, AgriProtein site produces 2000 tons of meal per year using 100 tons of waste organics from landfill.²⁰

¹⁶ <http://www.fao.org/docrep/018/i3253e/i3253e07.pdf>

¹⁷ <http://www.wattagnet.com/articles/25457-insect-protein-for-animal-feed-considered-in-eu>

¹⁸ http://www.feednavigator.com/Regulation/Green-light-for-insect-protein-in-fish-feed-in-EU?utm_source=copyright&utm_medium=OnSite&utm_campaign=copyright

¹⁹ <http://www.fao.org/docrep/018/i3253e/i3253e.pdf>

²⁰ <http://agriprotein.com>

Insect meal has a lot of unknown facts, Global edible insects market size will exceed USD 522 million in sales by 2023, with estimated gains at 42% CAGR. Bug-based flour and energy bars together saw over 54% of all edible insects market share in 2015.²¹

Insect meal potential:

- Feed animal industry
- Using waste, illiquid products
- Feeding insects
- Feeding with mussel
- Fast growing period
- Influence on environment is smaller as other protein

Insect meal risks:

- Diseases
- Chemicals (Kupferschmidt, 2016)²² etc.

Conclusion

Feed is the major cost position for the livestock farmers. Animal feeding takes a lead role in the global food industry and the total volumes of produced feed reach 375 billion EUR in 2015.

Increasing requirements of high quality product has developed feed industry.

Animal feed market has potential to develop. According to the FAO, the market has potential to increase by more that 1% per year in long term period.

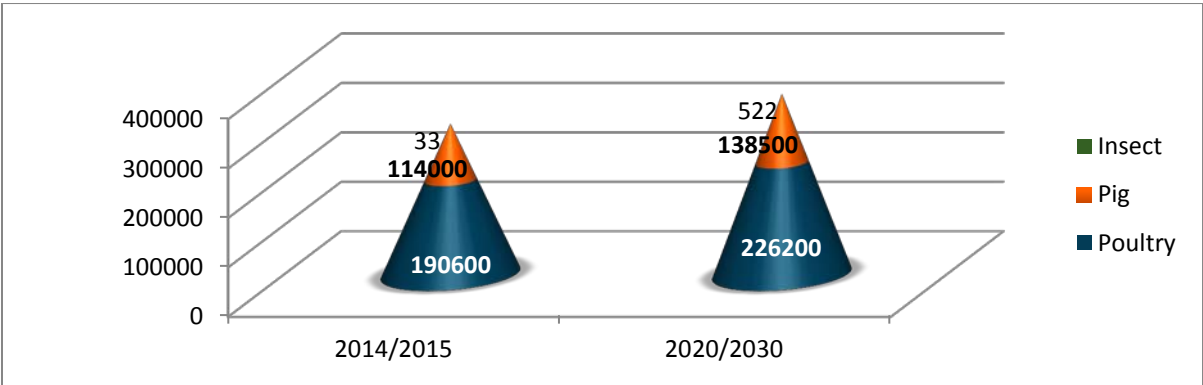


Figure 8 Poultry, Swine and Insect feed market million USD, prognosis of poultry and swine is set by Zion Research and insect feed – by Global market insights Inc.

²¹ <https://www.gminsights.com/pressrelease/edible-insects-market>

²² <http://www.sciencemag.org/news/2015/10/feature-why-insects-could-be-ideal-animal-feed>

Poultry feed market value is 190.6 billion USD and according to the Zion Research²³ the market is going to increase reaching 226.2 billions USD. Swine feed market will reach 138.3 billion USD. The increase of poultry and swine feed market is prognoses close to market historical development in last years.

Meat production has not changed within last 20 years in Europe, and Poland and Germany plays important role in Europe, impacting 24% of total Europe market, but countries which are located in the Baltic Sea Region, impacting 30% of total Europe meat market.

23

About

Baltic Blue Growth is a three-year project financed by the European Regional Development Fund. The objective of the project is to remove nutrients from the Baltic Sea by farming and harvesting blue mussels. The farmed mussels will be used for the production of mussel meal, to be used in the feed industry. 18 partners from 7 countries are participating, with representatives from regional and national authorities, research institutions and private companies. The project is coordinated by Region Östergötland (Sweden) and has a total budget of 4,7 M€.

Partners

- *Region Östergötland (SE)*
- *County Administrative Board of Kalmar County (SE)€*
- *East regional Aquaculture Center VCO (SE)*
- *Kalmar municipality (SE)*
- *Kurzeme Planning Region (LV)*
- *Maritime Institute in Gdańsk (PL)*
- *Ministry of Energy, Agriculture, Environment and Rural Areas (DE)*
- *Municipality of Borgholm (DK)*
- *SUBMARINER Network for Blue Growth EEIG (DE)*
- *Swedish University of Agricultural Sciences (SE)*
- *County Administrative Board of Östergötland (SE)*
- *University of Tartu Tartu (EE)*
- *Coastal Research and Management (DE)*
- *Orbicon Ltd. (DK)*
- *Musholm Inc (DK)*
- *Coastal Union Germany EUCC (DE)*
- *Swedish Institute of Agricultural and Environmental Engineering JTI (SE)*