PIG BREEDING IN BULGARIA

Market and opportunity analysis

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Executive Summary

Pig breeding in Bulgaria is a traditional sector that, after a long period of decline, is nowadays one of the most promising sectors in livestock breeding. At present domestic production meets only about 40% of the internal demand, but all prerequisites are present for this share to exceed 60% in the next three years and to continue to increase. This increase is based on high internal demand, the comparatively high prices of local production and public support. The high investment activity, weak production base and suitable conditions (comparatively cheap feed security, low density of animals on farmlands, low taxes) can be used to attract foreign investments in the sector.

The present analysis is an overview of various business aspects – the trends in production, consumption, technological level, means of production, supply chain structure, regulations and public policy, as well as information about the key market players. The monitoring period (2007-2017) is extremely dynamic for Bulgarian pig breeding, considering both the fierce competition and the improved access to technologies and funding after joining the EU Common Market. The main conclusions of the analysis are as follows:

- Production in Bulgarian pig breeding has been steadily recovering in the last three years, whereas, at the same time, the sector is becoming increasingly concentrated and industrialized;
- Production increase is supported by the high internal demand and the presence of public funding support;
- Regardless of the increase, local production is still less than half of the total internal demand;
- Bulgarian farmers benefit from one of the highest prices for high quality pork carcass (class E) in the EU;
- The cheap local grain and the extremely low density of LU per unit area of agricultural land are among the key competitive advantages of the country;
- Farm efficiency is constantly improving as a result of imported genetics, technologies and know-how;
- Production increase will probably continue at least in the middle run (3-5 years), that will inevitably lead to decline in the sector profitability;
- The lack of a large industrial slaughterhouse will be felt increasingly more serious in the following years. This is the main operational obstacle that prevents processors from using more Bulgarian raw material;
- Whereas Bulgarian pork is sold almost completely at retail to consumers, meat processing relies mainly on cheaper imports. Pork (cooled and frozen) is the category with the highest value in the agricultural imports of the country.

Contents:

List of Acronyms

AIPBB – Association of Industrial Pig Breeding in Bulgaria

AMB - Association of Meat Processors in Bulgaria

ASBB – Association of Pig Breeders in Bulgaria

ASF – African Swine Fever

BFSA – Bulgarian Food Safety Agency

CSF – Classical Swine Fever

EASRLB - Executive Agency for Selection and Reproduction in Livestock Breeding

FMD – Foot-and-Mouth-Disease

MAFF – Ministry of Agriculture, Food and Forestry

MEW – Ministry of Environment and Water

NSI – National statistical institute

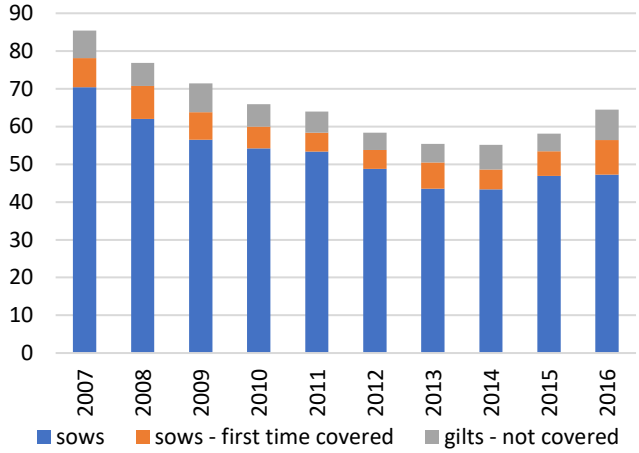
OBSSBB – Organization of the Breeders of Specialized Pig Breeds in Bulgaria

RDP – Rural Development Program

SFA – State Fund “Agriculture”

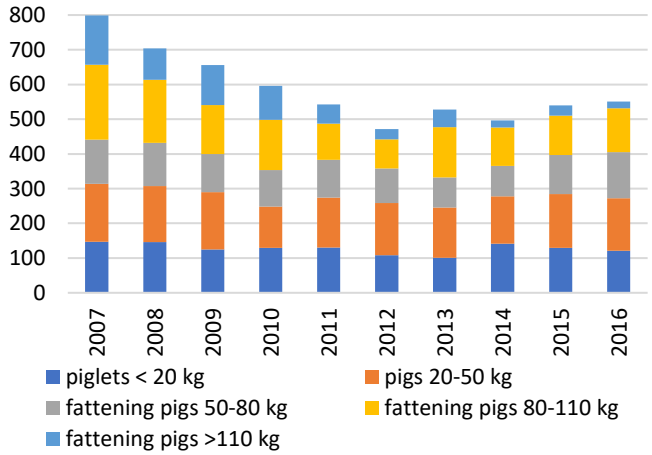
Production

Figure 1 - Number of sows (000 head) as of November



Source: "Agrostatistics", MAFF

Figure 2 - Piglets and pigs (000 head) as of November



Source: "Agrostatistics", MAFF

Table 1 - Number and average size of pig farms

	2007	2010	2013	2016
1-9 sows	10 300	6441	4578	1107
10-49	536	218	170	84
50-199	100	33	51	46
200+	55	45	32	36
sows/farm	8	10	11	51

Source: "Agrostatistics", MAFF

The total number of pigs in Bulgaria has been recovering since 2012 after witnessing strong decline after EU accession in 2007. The herd has contracted from 888 ths. to 531 ths[1]. heads and up again to 616 ths. heads. There is strong evidence that we will witness an even faster increase in 2017-2018 with some large investments taking place that may put the total number of pigs in the country well above 800 ths. heads again.

The number of sows and gilts increased by 17% in 2014 – 2016

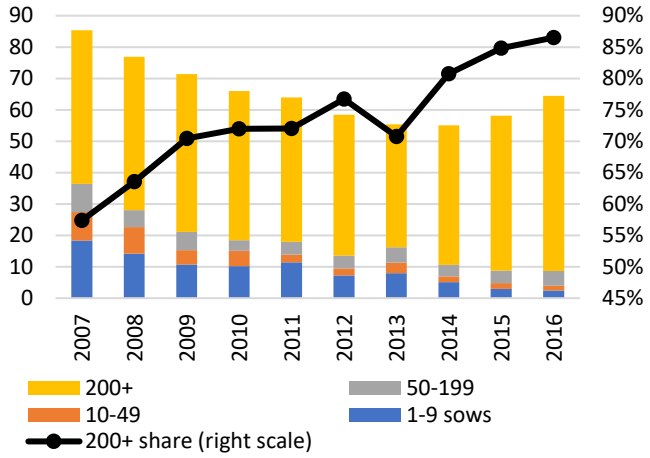
The pig breeding sector in Bulgaria has become more and more concentrated during the past ten years – 36 farms which represent less than 3% of all pig operators breed 86% of the sows. At the same time the role of backyard, small and medium-sized operations have been constantly decreasing, both in number of farms and sows bred. Thus, the 1-2 sows' category experienced 12 times drop for a period of ten years (2007-2016), the 3-9 sows' category – 5 times, the 10-49 category – 6 times and the 50-199 category – 2 times. The last category (>200 sows) saw consolidation with the number of farms decreasing by a third and the number of sows bred increasing by 14% during the same period.

In the same time, pig production has quickly industrialized. The average farm size intensively rises in the past three years – from 11 sows and gilts in 2013 to over 50 in 2016. Big farms are getting bigger, while their number is relatively stable – 35-40 in the last five years. Today, the Top10 farms have 40% of the total sows and gilts and the Top20 – 54% (see *Appendix*).

Some of the companies, like Boni, Ajax, Golyamo Vranovo Invest, Biliana, etc., developed full production cycle, integrating fodder production, breeding, production of piglets, fattening, own slaughterhouse and even initial processing, meat products and marketing.

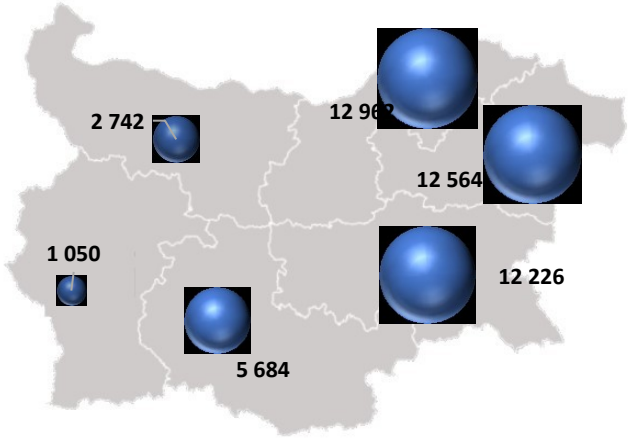
[1] Number of animals in the farms as of November each year.66

Figure 3 - Farm size structure (000 head)



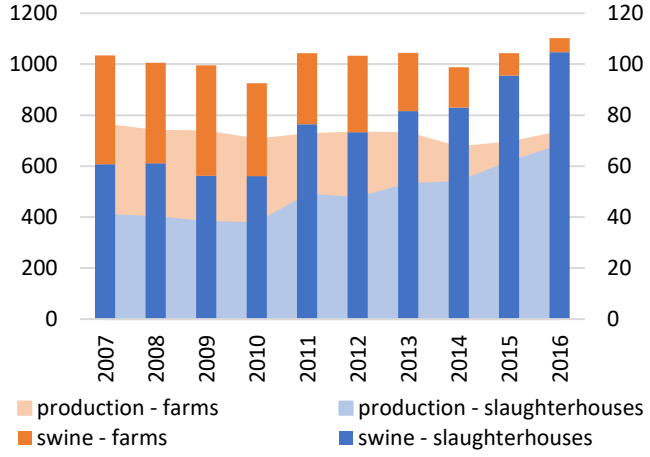
Source: "Agrostatistics", MAFF

Figure 4 - Sows distribution by NUT 2 Region, 2016



Source: "Agrostatistics", MAFF

Figure 5 - Slaughtered swine (000 head, left scale) and meat production (000 t, right scale)



Source: "Agrostatistics", MAFF

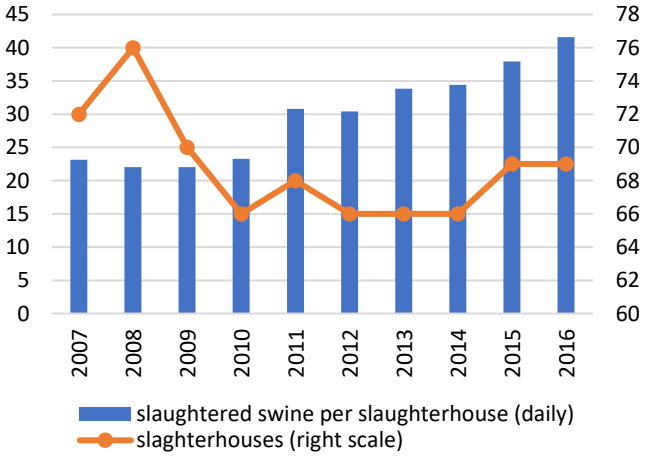
Production is concentrated geographically in North-Central and Northeastern Bulgaria. After a significant growth in the last few years, Southeastern Bulgaria joined as a third largest leading producer. These three regions have almost equal share in production capacity – 12-13 thousand sows and gilts each. Ten years ago, Northwestern Bulgaria, which is also a key grain producing region, had the second largest number of sows, but then experienced a sharp decline. The pig production geography is mostly determined by local grain capacity, ports availability for imported soymeal and large arable land nearby for manure utilization.

Pork production rises during the last two years, surpassing 73 thousand tons in 2016, which is the highest volume in seven years.

1.1M fattened pigs were slaughtered in 2016 – a 10-year high

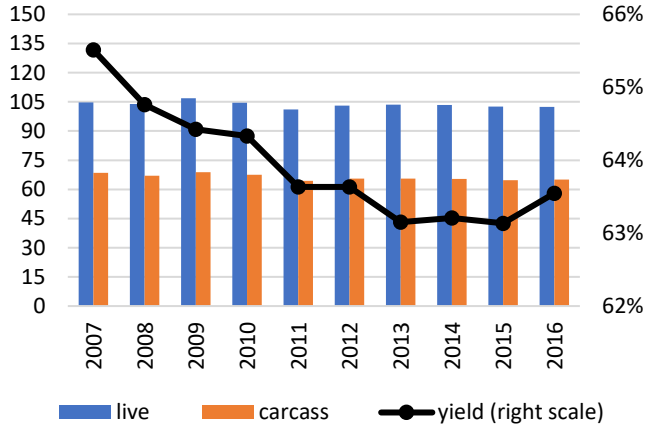
While in 2007, 59% (approx. 600 thousand) of the swine have been finished in slaughterhouses and the rest – in farms, nowadays this share is 95%. The shift towards industrialized production affects also the work load of the slaughterhouses. In 2016, there were 69 slaughterhouses, who has finished 42 heads per day on average. This is almost a double work load compared to 2007-2010 – 22-23 heads per day on average.

Figure 6 - Work load of slaughterhouses



Source: "Agrostatistics", MAFF

Figure 7 - Average live and carcass weight (kg) of slaughtered fattening pigs (in slaughterhouses)



Source: "Agrostatistics", MAFF

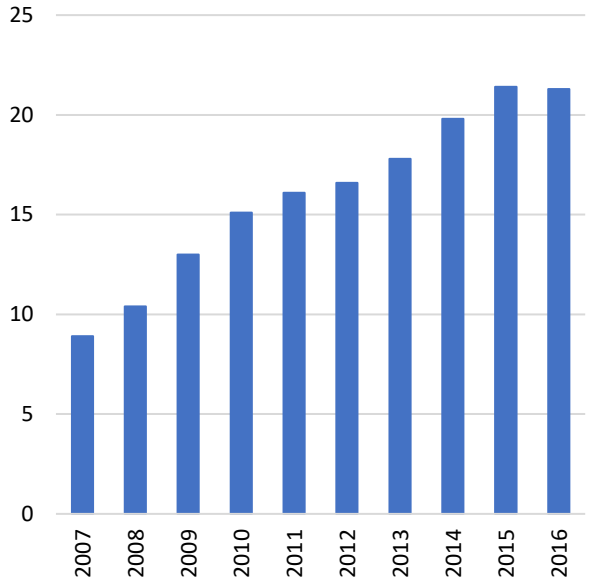
The lack of one large slaughterhouse could possibly hamper sales and operational profitability of the farms (because of nonoptimal slaughter timing). Therefore, most of the new farm investments and expansions include slaughter facilities. This challenge can be even more problematic giving the fact that vast majority of slaughterhouses process other livestock as well and in recent years there are some signals for production activity growth in different meat producing branches. Boni Holding, the market leader in pig and pork production has started an €5-million investment project for industrial slaughterhouse with daily capacity of 1200 heads (100 tons of carcass meat).

> ***The average live weight of fattened pigs is 102-103 kg and carcass yield is 63-64%***

Organic pork production is barely existing in Bulgaria. In 2016, there were 92 certified organic swine in total, 20 of them – sows (Eurostat). The organic market niche is marginal. In addition, there is no organic feed production in the country and pasture pig breeding is forbidden in the whole country except very few small areas for raising the endangered East Balkan pig breed (page 16).

Domestic Market

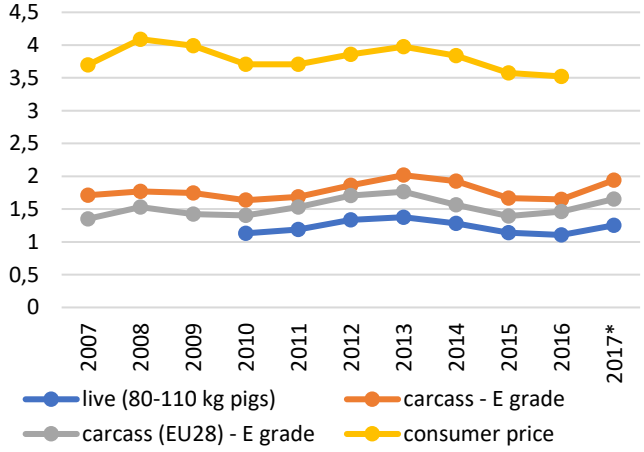
Figure 8 – Average pork purchases by households (kg/year)



Source: NSI; Eurostat
**** Purchased meat only. Doesn't include meat products, other foods and HoReCa***

Live weight prices reached 1,38 €/kg in October 2017

Figure 9 - Prices (€/kg)



Source: NSI; EU Meat Market Observatory (E grade – 55-59% lean meat); *Jan-Sept 2017

Total demand

Pork is traditional part of the Bulgarian cuisine and it is the most preferred meat of all kinds. Household purchases has increased more than twice between 2007 and 2015, surpassing 21 kg of fresh meat per annum. The significant growth is supported by both improvement in the living standard and decline in pork prices during the recent years. However, a substantial further growth seems doubtful. We consider some evidence in that direction - the trend flattening in 2016, as well as the gradual change of consumer preferences to poultry. In addition, the global price recovery also puts pressure on pork demand.

Based on official data, we estimate total consumption at approx. 180 thousand tons per annum. Between 60 and 70 thousand tons are purchased directly by the households as fresh meat and the rest is used in processing and HoReCa. However, according to the processing business, the processed pork itself is approx. 170 thousand tons. We must admit there is some evidence of undeclared imported quantities.

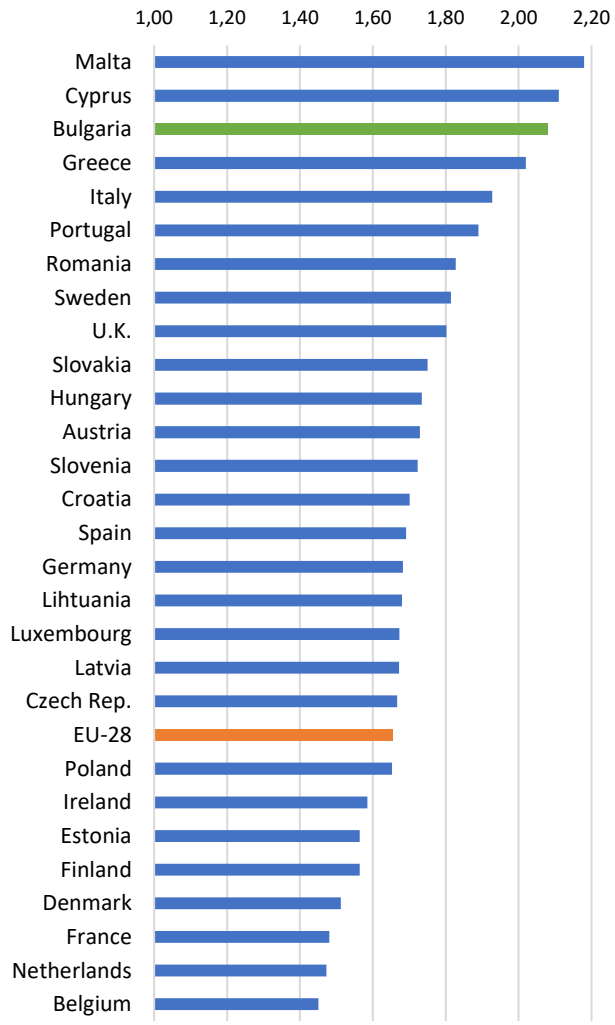
Prices

Only about 40% of the total demand is supplied by domestic production (this share is even smaller if compared to estimations of the processing industry). Moreover, Bulgarian pork predominantly meets consumer demand for fresh and chilled meat and only a very small part of it is processed.

This deficit supports domestic carcass (E-grade) prices permanently above the EU average.

The margin is substantial, varying between 10 and 23% in different years. For January-September, the average E-grade carcass price in Bulgaria is 1,96 €/kg, compared to 1,65 €/kg in EU-28. Thus, Bulgarian pork is by far the most expensive in the EU (excluding Malta and Cyprus, where domestic

Figure 10 - EU prices, September - euro/kg (E-grade carcasses – 55-59% lean meat)



Source: EU Meat Market Observatory

Figure 11 - Pork value chain structure (€/kg fresh retail meat, September 2017)

Source: InteliAgro estimations based on official data sources and information provided by the sector. The value of 1kg fresh meat equivalent is calculated at every stage of the supply chain (shelf price decomposition). Assumptions made: 3:1 feed conversion ratio; 64% carcass yield; 57,5% lean meat in carcass (E-grade)

production is negligible). It is 12% more expensive compared to Romania (a country with similar level of economic development and structure of pig production). The price difference to Spain is 23% - a key market for Bulgarian feed grain and at the same time one of the largest pork suppliers for the country.

Value chain

Production practices, technology level, genetics and marketing applied by the pig producers are still heterogeneous. Therefore, it is impossible to construct a representative for the whole sector value chain structure. However, there are some proportions which are more or less representative for the business. It is worth noting that some of the value components may vary in time, especially those related to grain prices, investment activities and other input costs. Giving the fact that vast majority of Bulgarian pork production is marketed for fresh or chilled consumer demand, we build a value chain model (Figure 11) for a relatively big farm with medium level of investment activity, selling finishers to slaughterhouses, which supply retail stores with fresh meat.

Feed costs form more than one third of the average consumer price. This proportion emphasizes the important role of feed conversion as competitive factor and its improvement by better genetics, feeding and raising methods.

The share of **other production costs** is closely related to the investment intensity and technology level. Most of Bulgarian farms are inheritors of old pig production complexes built at the times of centrally planned agriculture, whose planning and technologies are already outdated.

Still, depreciation forms relatively big part of the farm-gate price due to heavy capital investments

Proper renovation of a standard fattening facility could cost around €300 per m². The situation in case of green investments is similar. Thus, other than feed production costs may exceed 30% in the value chain, making total production costs narrow to what the companies get at the farm gate. After investment repayment, the non-feed costs usually

fall to 15-20% of the pork retail price. Their portion at more extensive farms is few percentage points higher.

The value of fresh and chilled pork at the farm gate is close to 90% of the consumer price,

which means the average profitability of Bulgarian pig production operations is quite impressive - roughly 35%. This figure does not include public support, which is approx. €0,1/kg live weight. The estimations of farm economic effectiveness suggest that pig producers substantially benefit from the scarce domestic pork and its high farm gate prices. It also suggests an accumulated investment potential for further expansion and intensification of the sector.

Processing

Table 2 - Top10 pork producers and meat processors in Bulgaria in terms of sales (million euro, 2015)

	pork producers	
1	Lovech Meat Factory (Boni)	35,7
2	Ruse Meat Factory (Boni)	22,3
3	Multimes Grup	6,6
4	Helikom	5,5
5	Lotos	5,0
6	Intermes	4,8
7	Pikant Trade	4,7
8	Delikates-2	4,6
9	Mesfood	4,4
10	Niki Mes 2013	4,4
	processed meat producers (pork and other)	
1	Fermata (Bella Bulgaria)	49,0
2	Lovech Meat Factory (Boni)	26,9
3	Ken	25,1
4	Delikates-2	15,2
5	Karol_Fernandez Meat	13,6
6	Makro Kor (Bravo)	10,3
7	Elit Mes Minev - Rodopa	7,9
8	Eco-Mes	7,2
9	Tandem-V	6,8
10	Lotos	6,5

Source: AMB

With production expansion in next years, it is likely that farm margins will tend to shrink

Around 5-6% of the shelf value stays at the **slaughterhouses** and another 4-5% is the average **retail margin**. Pork retail is extremely competitive, especially after the expansion of modern chain stores (Lidl, METRO, Billa, Fantastico, Kaufland, etc.). According to farmers, small retailors and specialized meat shops still have significant market share. Giving the price-sensitive consumption in Bulgaria, shelf prices have relatively low elasticity (less volatile). When the spread between Bulgarian and EU carcass and cuts prices is getting bigger, retailors import more intensively and by doing so, they rebalance the market.

There are around 490 meat processors (meat making, initial meat processing and preserving and meat products) in Bulgaria (Eurostat). Approx. 80% of these enterprises are involved in red meat processing. The Association of Meat Processors in Bulgaria represents about a quarter of the companies (50-60% of the total sales), including all the largest processors. The business estimates its capacity for pork processing at 340 thousand tons per annum. Currently, a half of it is used at most. The small domestic market for meat products (in terms of both purchasing power and volume) is considered as main factor for such significant underperformance. In addition, despite the processors' willingness for entering foreign markets, export stays marginal. While Bulgarian meat products could be enough competitive in price, a lack in marketing, promotion and product development keeps foreign markets shut. Moreover, most of the enterprises are not able to provide large scale deliveries.

Due to insufficient production and higher prices of domestic pork, Bulgarian processors rely almost entirely on imported raw material. Since they have access to cheaper EU suppliers, this does not substantially affect their competitiveness.

Slaughterhouses are usually the intermediaries between pig producers and processors (farms are rarely contracted as suppliers). While the number

of slaughterhouses is relatively big, their small capacity is the main operational obstacle for purchasing Bulgarian pork. Due to the size of their operations, they offer mostly carcasses and half carcasses, while processors need large deliveries of more specific cuts. A step towards additional fragmentation has been made in recent years by public policy supporting small slaughtering facilities at farm sites.

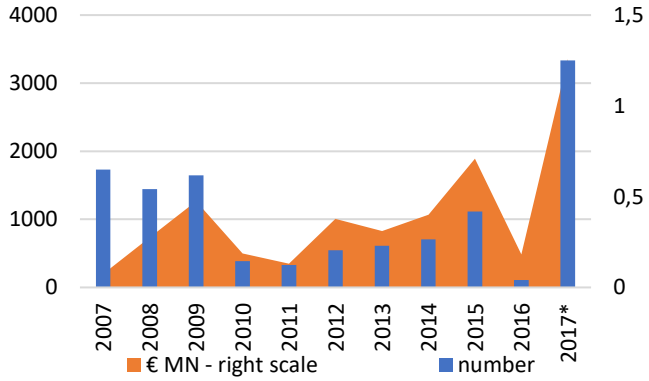
Pricing at slaughterhouses is another issue at this stage of the pork supply chain. The price is often set for live weight regardless the carcass quality (grade), which does not provide incentives to farmers who follow good production patterns.

Giving the fact that pig production is focused mostly on fresh meat demand, genetics and carcass quality have evolved to meet the requirements of this market – more lean meat, less fat, which has also limited the disposable domestic raw material for processors – they need more fatty meat at lower price.

Meat processing was well prepared for EU accession back in 2007. All the largest factories were renovated and modernized with a high-end equipment, making production in line with all European standards. Ten years later, the business needs another wave of investments in order to keep competitive pace with the newest and most efficient technologies. Furthermore, the insufficient and more expensive workforce pushes companies to seek for less labor-dependent production solutions. The demand for new equipment and machinery in 2017 and 2018 is going to be boosted also by the second admission in 4.2 RDP investment measure. Meat processing sector is expected to be quite active in preparing and submitting investment proposals.

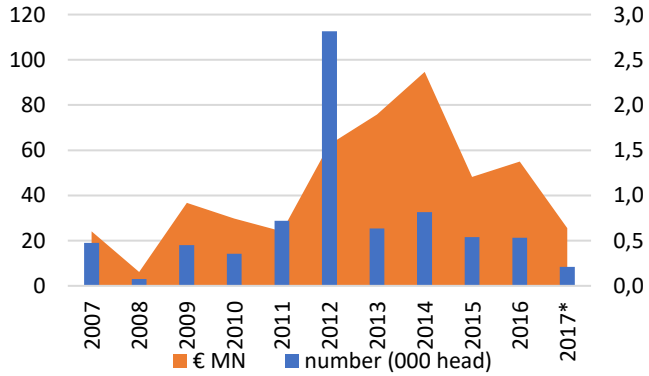
Foreign Trade

Figure 12 - Breeding swine import



Source: NSI. *H1 2017

Figure 13 - Import of <50 kg pigs



Source: NSI. *H1 2017

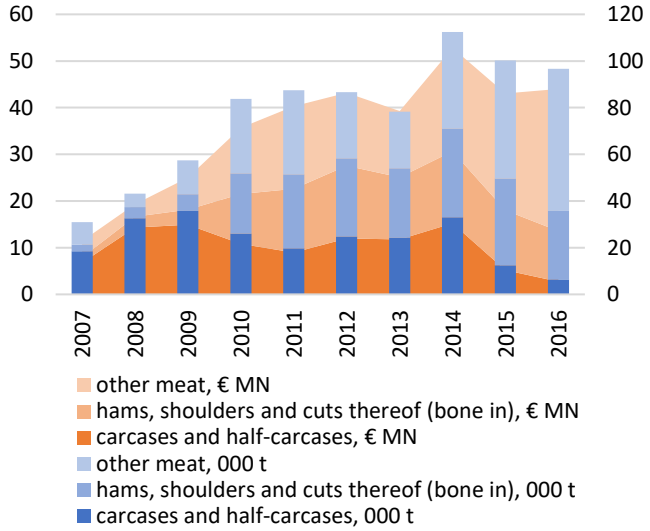
Bulgaria is by far a net importer of both live swine and pork. The export is negligible, irregular and mostly is result of sporadic market testing. In the end of 2016, a 10-year ban on live swine export for EU was lifted (see page 22).

Pork is traditionally the largest category in Bulgarian agricultural import.

The foreign supply has a key role in balancing Bulgarian market, considering the significant deficit of domestic production and much lower import prices.

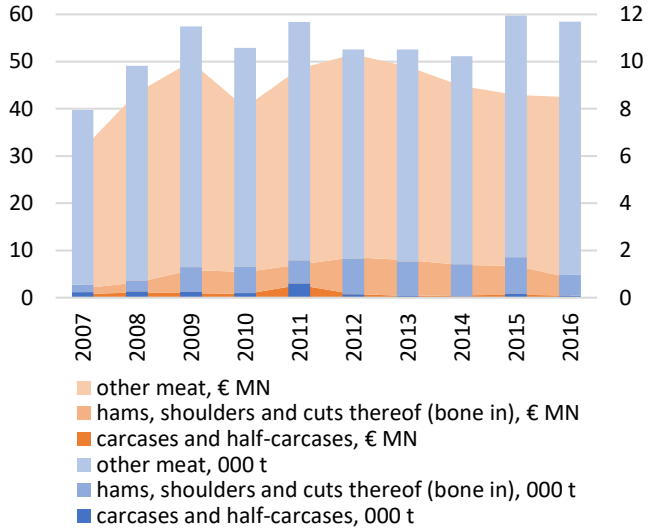
The value of live swine import is far from impressive. In the recent years, up to 1000 breeding swine have been imported (less than 2% of the total sows and gilts), valued less than EUR1 M per annum. In 2017, there is increased interest in breeding swine import, related to few bigger investments. The fattening piglets import is also insignificant – around 20 to 30 thousand heads per annum (2-3% of the total fattening pigs in Bulgaria). As an exception, more than 112K piglets have been imported in 2012. According to the

Figure 14 - Fresh or chilled pork import - quantity (left scale) and value (right scale)



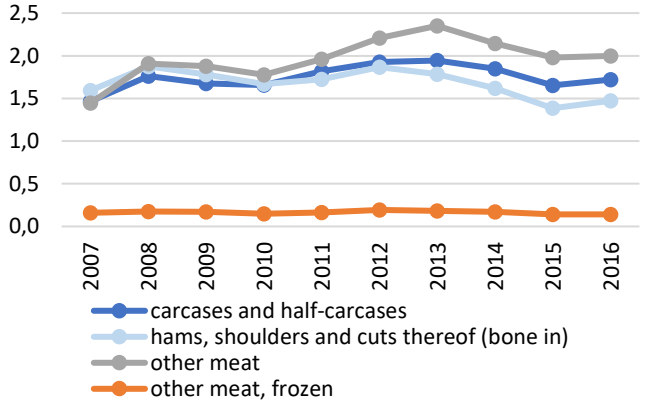
Source: Eurostat

Figure 15 - Frozen pork import - quantity (left scale) and value (right scale)



Source: Eurostat

Figure 16 - Average import price of pork, €/kg



Source: Eurostat

sector, the reason is a support scheme in Romania, which have caused rapid growth in piglet production and selling off at very low prices. Moreover, at that time Bulgarian subsidies did not require domestic origin of pigs for fattening, which encouraged piglets import.

The size of pork import is impressive not only compared to domestic production, but also to whole Bulgarian agriculture. In 2016, the total pork import was 107 thousand tons (€97M). Fresh and chilled meat has the largest share in value – €88M (48 thousand tons). The average import carcass price is 1,7-1,8 €/kg, which is 11-12% lower than domestic production. There is a shift towards import of different fresh or chilled cuts in expense of carcasses and half-carcasses.

France and Spain are the leading fresh or chilled pork suppliers in Bulgaria.

They have almost equal share in the last five years and together form a half of the total import in the category. Another 11% have been supplied from Germany and Belgium and the Netherlands close the Top5 importers by having 9% share each.

Frozen meat has the largest share in pork import volume – 58 thousand tons (€8M). Bulgaria is among the Top5 EU frozen pork importers (Eurostat, 2016). Considering the insufficient and expensive domestic supply, with its average price of less than 20c, the imported frozen pork is a last resort for Bulgarian meat processing industry.

Spain (32%) and Germany (23%) are the largest frozen pork suppliers in terms of volume (Eurostat, 2012-2016).

Pork is usually imported through different intermediaries. A very few processors and retailors make single purchases directly from European meat producers. Most of the foreign producers sell trough Bulgarian traders. Among the largest local importers are Unitemp and Nova Trading Company. Vion (own representation in Bulgaria), Danish Crown, Tönnies; PROFOOD (own representation) are among the common pork producers for Bulgarian market.

Table 3 – Top 5 meat exporters for Bulgarian market (MT)

Fresh and chilled	Δ2012-2016	2016
France	12 329	13 521
Spain	11 277	20 005
Germany	5 543	3 300
Belgium	4 484	1 673
Netherlands	4 265	1 904
Other	9 517	7 924
Frozen	**Δ2012-2016**	**2016**
Spain	17 368	19 272
Germany	12 405	11 046
France	4 603	3 947
Hungary	3 090	3 137
Poland	2 752	2 903
Other	14 682	18 170

Source: Eurostat

The industry claims that unofficial import significantly surpasses the officially reported quantities. According to the branch, declaring less meat than the one entering the country is a lasting practice that ruins the fair competitive environment by avoiding tax payments by some market players.

Breeding

Table 4 - Breeding Associations in Bulgaria

Association (farms)	swine	female	male
Association of Pig Breeders in Bulgaria (30)	18 892	18 604	288
Association of Industrial Pig Breeding in Bulgaria (7)	18 250	18 250	-
Organization of the Breeders of Specialized Pig Breeds in Bulgaria (12)	4 846	4 772	74
Association for Breeding and Preserving of the East Balkan Pig (18)	1 258	1 205	53
Total (67)	43 246	42 831	415

Source: EASRLB

As of September 2017, there are four breeding associations, registered in EASRLB, representing 67 farms. They have approx. 43 thousand breeding swine under selection control of the Agency (66% of the total breeding swine). The biggest two associations – APBB and AIPBB, are almost equal in size – 18-19 thousand breeding swine.

There are 35 pure-bred herds with around 6500 swine. The British Landrace has the highest number among them – 1608 in 3 herds. Other widespread breeds are Danish Landrace and English Large White – over a thousand swine each. Three pedigree herds of the local Danube White breed[2] keep 800 swine.

Table 5 - Pure-bred breeding swine

breed	herds	swine	female	male
British Landrace	3	1608	1598	10
Danish Landrace	3	1380	1370	10
East Balkan	17	1234	1183	51
English Large White	1	1030	1020	10
Danube White	3	800	770	30
Danish Yorkshire	1	360	350	10
Danish Duroc	6	80	-	80
Polish Large White	1	65	50	15

Source: EASRLB

The East Balkan pig is an endangered native pasture breed, raised in very limited area in parts of Burgas, Varna and Shumen districts (pasture pig farming is generally forbidden in Bulgaria). It has quite low productivity – in terms of both weight growth and fertility rate. However, this breed is characterized by the very high-quality and tasty meet, which is also used in production of specific boutique dry meet products. According to EASRLB, there are roughly 1200 East Balkan breeding swine in 17 pedigree herds.

[2] Officially registered in 1985, this is breed was obtained after multiple crossing of the Bulgarian White, Large White, Landrace Hampshire and Pietrain pigs (Szostak et al., 2004)

Feed

Bulgaria has strong grain capacity for feed production. In the last decade, the country established itself among the key players in the Black sea and Mediterranean grain markets. Bulgaria is in Top15 in global grain export. It provides 2% of the world wheat export and 1% of the world maize export.

Bulgaria is the 4th largest EU exporter of wheat and maize.

Moreover, Bulgarian grain prices are among the most competitive in the region. Giving the fact that feed has 60-80% share in live weight production costs (estimations by the sector), grain produce is important factor for profitable fattening business and could be considered as competitive advantage. Bulgarian feed production strongly relies on imported soymeal – mostly from USA and Argentina. The boom in soy sowings, driven by implementing green payments in the CAP, led to disappointing yield and quality results. Ultimately, soy production in Bulgaria stays insignificant.

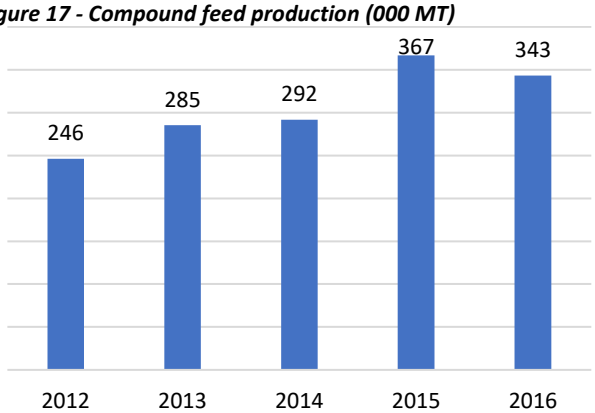
Feed producers are predominantly domestic-owned. BFSA data shows that Bulgarian compound feed production is approx. 1-1,2 million tons per annum. Almost one third of this quantity is used in pig production.

Table 6 - Bulgarian grain export (2012-2016)

	MMT (average)	MMT (cumulative)	share in world export (rank)
wheat	3,3	16,6	1,9% (11)
maize	1,5	7,3	1,1% (13)

Source: International Trade Center

Figure 17 - Compound feed production (000 MT)



Source: BFSA

According to the Union of Compound Feed Producers in Bulgaria, the production capacity is much larger – 6-7 million tons. The low capacity load is caused mainly by the difficulties in Bulgarian livestock sector and sharp decrease in livestock number, observed for more than two decades after the crash of centrally planned economy. In addition, expensive laboratory tests, required for export, limit the potential for deliveries abroad (BFSA decides which laboratories to authorize). Despite this, Bulgaria exports compound feed, mostly to EU and neighboring countries.

Pig breeding is almost fully independent from out-of-farm feed suppliers.

All the big farms have their own feed production and storage facilities. Predominantly imported are some starter feed products and vitamin mineral complexes, whose production is more specific and requires larger scale to be economically sound.

Bulgarian grain has good feed qualities, but rarely there are issues, related to pesticide residuals due to unappropriated practices by some grain producers. All big feed producers have invested in own laboratories for constant control of inputs and output.

Feed companies in Bulgaria indicate high interest in modernization, new technologies and product development. Most of the plants have old but well-maintained facilities and equipment - some of the production lines were installed 30-40 years ago. From one hand, the low investment activity so far is a consequence of excess production capacity, but from the other - feed producers had been practically excluded from RDP financing. With changes in selection criteria of 4.2 RDP measure (investments in processing and marketing of agricultural produce), they now have much higher chance for project approval. The second 4.2 admission starts in November 2017 and is going to be open for three months.

National policy and subsidies

Opportunities for support

Public support measures are playing significant role in pig breeding recovery and intensification. Despite the favorable market conditions, they are still a substantial part of the farm income (7-8% of the live-weight prices). And if no change, public aid for pig breeding will be in force at least during the next five years. However, due to its fixed budget and growing interest, the average payments for LU is likely to decrease.

The Pig breeding sector can be supported in two ways at the EU level under the existing legal framework:

- Animal welfare payments within the meaning of Article 33 of Regulation 1305/2013. In this case the funding for the support will come from the European Agricultural Fund for Rural Development and will be provided through the Rural Development Programme of the Republic of Bulgaria for the period 2014-2020.

- Animal welfare payments within the meaning of Part II, Section 1.1.5.2 (Aid for animal welfare commitments) of the European Union Guidelines for State aid in the agricultural and forestry sectors and in rural areas 2014 to 2020. In this case the funding for the support will come from the national budget of the Republic of Bulgaria and will be provided through State Aid notified to the EC.

Existing schemes and support measures

At present the pig sector is supported by the national budget of the Republic of Bulgaria through notified and approved State aid № SA 34409 (2012/N) – "Aid for the realization of voluntary animal welfare commitments for pigs".

The duration of the state aid is from the scheme approval on 12.11.2012 to 31.12.2017. The overall budget for the duration of the scheme is 165,102,000 BGN and the annual budget is determined by the Managing Board of the State Fund Agriculture. The aid budget for 2017 amounts to 28,000,000 BGN.

A beneficiary of the aid can be any farmer registered under Regulation 3/1999 who manages a registered animal farm, is not in difficulty and has no debts towards the State Fund Agriculture and the State budget. Also, the number of reared animals should match the farm capacity.

The purpose of the state aid scheme is to provide payments for additional costs or income foregone associated with the implementation of voluntary commitments in the pig sector.

The duration of the voluntary commitments that have to be fulfilled by any beneficiary participating in the scheme is 5 years. The commitments are as follows:

- Provision of unobstructed floor area of at least 10% above the required standard;
- Provision of artificial light for 11 hours a day (the minimum requirement is 8 hours);
- Use of feed containing maximum 2.5 mg/kg deoxynivalenol.

The maximum intensity of the aid is 100% and is granted for 1 livestock unit. The aid is granted for:

- fattening pigs (1 fattening pig = 0.3 livestock unit);
- sows (1 sow = 0.5 livestock unit).

The maximum amount of the aid is:

	Types of pigs	
Measures	**Fattening pigs (0.3 LU)**	**Sows (0.5 LU)**
At least 10% additional floor space	106.96 BGN	49.50 BGN
11 hours of artificial light	18.00 BGN	26.10 BGN
Deoxynivalenol in feed – maximum 2.5 mg/kg	36.24 BGN	46.00 BGN
Total:	**161.20** BGN	**121.60** BGN

For 2017 the applications for receipt of aid for sows is submitted once per year, whereas the applications for fattening pigs are submitted in three tranches, corresponding to the four-month periods of the calendar year.

New enterprises are allowed to apply for receipt of the aid within the time periods for submission of the applications. It should be taken into account, however, that the fulfilment of a 5-year commitment is not coupled to the disbursement of the funds. This means that, if a new enterprise receives funds during the last year of the State aid implementation and it is not continued, the enterprise will be obliged to fulfil the voluntary commitments at its own expense during the next four years. Otherwise, it will have to repay the received funds, but the grounds for their repayment will be unduly received state aid, which can negatively affect any future receipt of other state aids.

It is important to note that if the amount of the requested funds exceeds the annual amount set (i.e. more animals are declared), the Managing Board of the State Fund Agriculture, depending on the budget available, can either increase the budget (as it was the case in 2015) or introduce a reduction coefficient for the calculation of the amount of every applicant.

New schemes and support measures

On 27.07.2017 the European Commission approved a new State aid SA.48336 (2017/N) – "Aid for the realization of voluntary animal welfare commitments for pigs". The duration of the aid is from 01.01.2018 to 31.12.2022.

In its essence this State aid is a continuation of State Aid № SA 34409 (2012/N) – "Aid for the realization of voluntary animal welfare commitments for pigs" ending on 31.12.2017. The new State aid takes into account the newly introduced requirements and changed legislation in the system of the state aids at the EU level.

The voluntary commitments in the old and the new aid are essentially the same.

With respect to the beneficiaries of the aid a new requirement has been introduced – they should correspond to the definition of an active farmer pursuant to Article 9 of Regulation (EU) №1307/2013.

The overall budget of the scheme is 178,857,320 BGN and the annual budget for every year is determined by the Managing Board of the State Fund Agriculture.

There is no change in terms of the aid intensity and the size of the livestock unit. The only change concerns the aid rates, visually:

Measures	Types of pigs	
	Fattening pigs (0.3 LU)	**Sows (0.5 LU)**
At least 10% additional floor space	95.06 BGN	91.22 BGN
11 hours of artificial light	18.83 BGN	27.32 BGN
Deoxynivalenol in feed – maximum 2.5 mg/kg	36.23 BGN	46.00 BGN
Total:	**150.12 BGN**	**164.54 BGN**

The rest elements of the new State aid are identical to the old State aid.

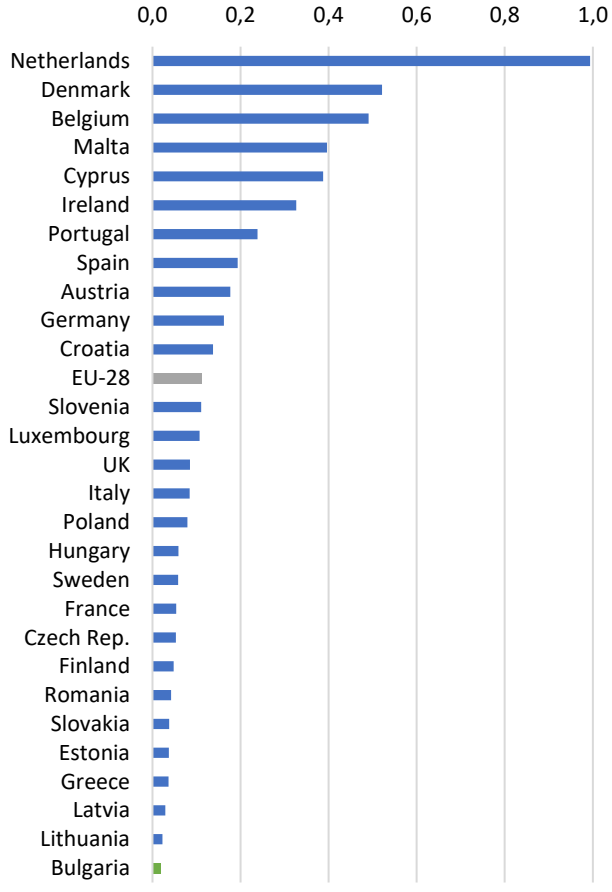
However, it is important to note that the final specific parameters will become familiar only when the Managing Board of the State Fund Agriculture adopts the budget for 2018 and the guidelines according to which the requesting and granting of aid for this year will be carried out. This is expected to occur at the beginning of 2018.

Manure management

Pig production industrialization comes hand in hand not only with increased efficiency, but also severe environmental issues. Larger pig farms mean more manure to be collected, safely stored and utilized. In the same time, manure management is costly and sensitive public topic.

Directive 91/676/EEC (the "Nitrates Directive") establishes the so-called Nitrate Vulnerable Zones (NVZ), where farmers must follow compulsory restrictions and practices to protect and reduce water pollution. NVZ measures are regulate by the "Reduction and Prevention Program for Nitrate Pollution from Agricultural Activities in 2016-2019 period" and controlled by BFSA and SFA inspectors. NVZ include 141 Bulgarian municipalities (out of 264 in total). 98 of them are fully covered and the rest – area up to a certain altitude.

Figure 18 - Breeding swine per ha arable land, 2016



Source: Eurostat

Almost all the largest pig farms are located within NVZ. Farmers in NVZ are required to have safe and isolated manure storage facilities – separate for solid and liquid manure. Their capacity must match the farm size – the standard six-month capacity is approx. 1,35m³ per each 100-kg pig. Solid manure must be stored for at least six months and liquid – for at least four, before using it as fertilizer. Manure fertilizing is forbidden between Nov 1 and Feb 20 for South Bulgaria and between Nov 1 and Feb 25 for North Bulgaria. In addition, organic fertilizers are limited to 170 kg nitrogen equivalent per ha per annum. Thus, pig producers need to either operate enough land or contract other farmers for fertilizing their land. Considering these standards, one sow requires approx. 0,15 ha for manure utilization and 1 fattening pig – 0,03 ha. It means a pig farm with 2000 sows (and 25 fattening pigs per sow annually) needs at least 2000 ha of land to fertilize. The total size of arable land in Bulgaria (and particularly in pig breeding regions) is enough to ensure practically unlimited growth in pig production, regarding manure utilization capacity.

> ***Bulgaria has the lowest breeding swine density on ha arable land in EU (0,02)***

Therefore, arable land could be considered as competitive advantage, compared to leading producers like the Netherlands (0,99), Denmark (0,52), the Netherlands and Belgium (0,49).

Greenhouse emissions also cannot be considered an obstacle for pig breeding growth, since Bulgaria is a seller of emission quotas (worth €85M in 2016, according to MEW). Agriculture contribute to only about 10% of the total greenhouse gases in. Bulgaria – approx. 6000 Gg CO_2eq per annum (56% less than in 1988)[3].

Sometimes farmers are not willing to use organic fertilizers and there is no administrative obligation for them to do so. Moreover, the machinery for manure fertilizing is quite expensive. Pig producers cannot store manure for eternity, since the large-

[3] *Greenhouse gas emissions in Bulgaria (1988-2015) report*, MEW, March 2017

scale production means huge investments in storage facilities, which would cost competitiveness. Biogas installations can solve the problem only partially, because they reduce the manure volume, but cannot make it disappear completely. Such stalemate situation puts pressure on producers to neglect the compulsory good practices in order to get rid of manure in cheaper and easier way. According to the business, such behavior is indirectly encouraged by the loosened administrative control on manure management.

Ground lagoons are the simplest and most widespread method for manure storage. Most of the old pig-breeding complexes have been built with sufficient lagoon capacity. However, due to their high construction and maintenance costs and ineffective operations, many farmers are switching to manure silos or movable manure tanks ("bubbles"), which does not require construction permit and could be installed in few days.

Manure facilities are built almost entirely from Bulgarian companies, who also represent European suppliers of manure equipment and machinery. Among constructors and suppliers are: Marpex Agro (JOZ, Bauer, FarmTech, Bergman, Pichon, Agrometer, Albers Alligator), Svemar (Firestone BP), Agritop (Joskin), Agro-vista (Kirchner, Landia), Permastore (manure silos), Richel Storage, Gimexport, Euro Group 2007.

Animal health and veterinary regulations

Bulgarian and EU animal health regulations are fully synchronized. Some of the core domestic regulations are: The Veterinary medicine law; the Stock-breeding law; the Law for animal protection; the Fodder law; MAF Regulation 44/20.04.2006 on farm veterinary requirements (see the full legislation here).

Bulgarian Food Safety Agency (BFSA) is entitled to implement the relative legislative acts, decrees and orders. Network of official veterinarians, employed by BFSA, along with its other inspectors, execute the control on the whole pork supply chain. They also issue certificates and documents, required in production, processing, transport and trade.

Bulgaria does not have developed risk management tools, related to animal health – insurance, risk management funds or pools. In case of epizootics, public support for prevention and compensation is provided to farmers on ex-post basis. BFSA receives additional transfers from the central budget to cover expenditures for dealing with disease events.

Classical swine fever (CSF) was registered in Bulgaria in 2006, which imposed a ban on live swine and non-thermal processed pork export for the EU-market. Meanwhile, a new control and biosecurity categorization system has been introduced and between 2009 and 2015 there were no evidences of CSF virus. In the end of 2016, the export ban was lifted. Since 2009, there is only one case of euthanasia caused by animal disease outbreak – 192 swine in 2011 due to FMD in a very limited area in Burgas province (BFSA). The fast industrialization and improved production technologies have also contributed to the favorable health status of Bulgarian swine herd.

BFSA considers ASF virus as a substantial threat for Bulgarian pig breeding. The disease, which causes damages in parts of Central and Eastern Europe – Poland, Belarus, Russia, Ukraine, etc., has been registered in 2017 in Czech Republic (wild boars) and Romania (still limited areas next to Ukrainian and Hungarian borders). At this stage, projections are pessimistic. According to BFSA, the ASF virus is likely to enter Bulgaria at any time. BFSA has strengthen its control, especially in the border regions, but since there is no applicable vaccine, the best prevention is the one at farm level. Therefore, the risk of significant economic losses could boost farmers demand for biosecurity technologies and knowledge transfer. However, most of the big pig farms have closed environment and relatively high biosecurity.

Investments

Ajax Group is more than doubling its production capacity with an investment of €23.5M. The new facility will have capacity of 7000 sows (imported from Denmark - Danbred) and own feed plant in North-eastern Bulgaria (Kozloduitsi, Dobrich district). The group also has plans to invest €3M in biogas facility.

In 2013, the first foreign investor entered the sector. Austrian controlled AgroSIP invested €12M in two 720-sows facilities, a fattening farm with 35 000 pigs capacity, a feed plant and 18 000 tons silos in the Dobrich district. The pig breeding and fattening use Austrian technology while the swine breed is Danbred. The investment is financed with own capital and credit from Tokuda Bank Bulgaria.

In 2015 a smaller investment started operations in Sliven district, Eastern Bulgaria. It has a capacity for 2500 fattened pigs per year. The investor is a Bulgarian grain producer who operates 1700 ha of arable land and uses the produce for pig feed. The farm is designed by Agritop and equipped with German technology (SCHULZ). The facility also includes a slaughterhouse, a cutting room, and a meat processing workshop. The produce is distributed through own chain of specialized stores. Financing comes 50% from RDP and 50% through bank loan.

Agrotime constantly invests in renovation of its facilities (it has one of the largest pig breeding bases – a former communist pig fattening complex for 60 000 fattened pigs per annum). The most recent reconstruction aims at moving to open floor space for pigs raising, which will increase the capacity by 30%. The company uses technologies from UK, Canada, Belgium, Denmark, etc.

Boni plans to expand its capacity from 10 000 now to 25 000 sows in 10 years. To do so, the holding has already started renovation of a pig farm in Levski (2000-2300 sows) and considers other green investments. In 4-5 years, Boni is going to complete the largest slaughterhouse in Bulgaria with capacity of 450-500 000 heads per annum.

SWOT analysis

STRENGHTS:

- **Industrialization and concentration;**
- **Strong domestic demand;**
- **Competitive feed production;**
- **Arable land for manure utilization;**
- **Public support.**

WEAKNESSES:

- **Small domestic meat products market;**
- **Shift in consumer preferences;**
- **Fragmentation in slaughtering and lack of a large industrial slaughterhouse.**

OPPORTUNITIES:

- **Genetics improvement and implementation of new technologies;**
- **Full supply chain production;**
- **Close premium foreign markets;**
- **Attraction of foreign investments.**

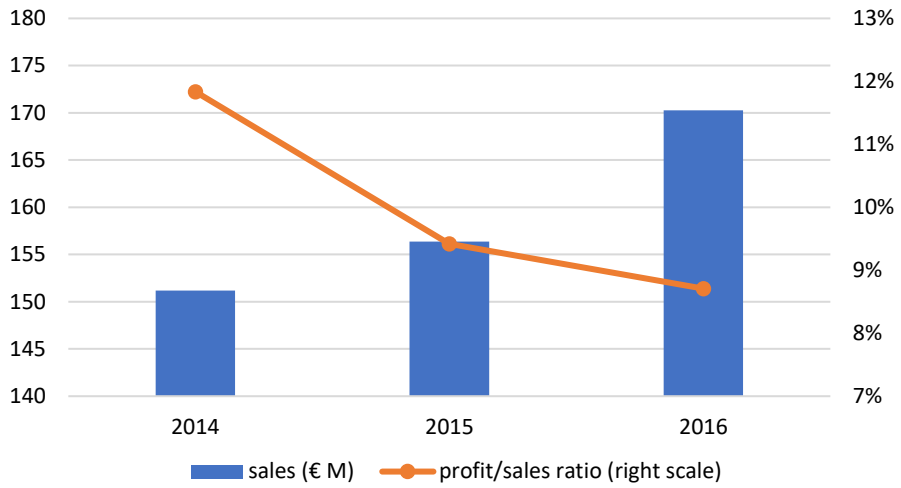
CHALLENGES:

- **Pricing for meat quality;**
- **Competitive import;**
- **Disease dissemination;**
- **Strengthen environmental requirements.**

Appendix – Key players

In 2016, the Top10 companies in pig production have reported total sales of €151M and total net profit of €15M (some of the companies do not separate pig production from their other agricultural activities, therefore this figure is to some extent overestimated). Their average balance sheet profitability ratio is between 9 and 12% during the last three years. Among the 30 observations in this period, there is no single company that has reported negative profits.

Figure 19 - Top10 pig producers – cumulative sales and profits



Source: Annual company reports

Table 7 - Top 20 farms by number of breeding swine (as of September 2017)

	Farm	Province	Municipality	Town/ Village	Breeding swine	Breeding Association
1	Svinekompleks Brestak (Свинекомплекс Брестак)	Varna	Valchi dol	Brestak	4600	AISBB
2	Ajax 01 (Аякс 01)	Stara Zagora	Opan	Pastren	3300	AISBB
3	Svinekompleks Brashlen (Свинекомплекс Бръшлен)	Ruse	Slivo pole	Brashlen	3000	AISBB
4	Manex Sun (Манекс Сън)	Varna	Aksakovo	Slanchevo	2700	AISBB
5	Svinekompleks Krumovo Gradishte (Свинекомплекс Крумово Градище)	Burgas	Kanobat	Krumovo Gradishte	2500	AISBB
6	Svinekompleks Golyamo Vranovo Invest (Свинекомплекс Голямо Враново Инвест)	Ruse	Slivo pole	Golyamo Vranovo	2494	ASBB
7	Agrotime (Агротайм)	Razgrad	Isperih	Isperih	2470	ASBB
8	Stomar Invest (Стомар инвест)	Plovdiv	Rakovski	Belozem	1779	OBSSBB
9	Ecoproduct (Екопродукт)	Silistra	Silistra	Vetren	1552	ASBB
10	ET Tomi-V.Papazova (ЕТ "Томи-В.Папазова")	Pazardzhik	Pazardzhik	Apriltzi	1540	ASBB

11	Hybrid Center in Pig Breeding (Хибриден център по свиневъдство)	Shumen	Shumen	Shumen	1500	AISBB
12	Svinekompleks Nikolovo (Свинекомплекс Николово)	Ruse	Ruse	Nikolovo	1447	OBSSBB
13	Bilyana (Биляна)	Veliko Tarnovo	Svishtov	Balgarsko Slivovo	1200	ASBB
14	Pig Breeding Reproductor (Репродуктор по свиневъдство)	Yambol	Tundzha	Kalchevo	920	ASBB
15	Bratya Tomovi (Братя Томови)	Targovishte	Popovo	Popovo	883	ASBB
16	ET GRIMI - Hyusein Hyusein (ЕТ ,,Грими - Хюсеин Хюсеин")	Pazardzhik	Peshtera	Peshtera	711	ASBB
17	Osam Commerce (Осъм Комерс)	Pleven	Pleven	Disevitza	650	AISBB
18	ET Milena Mitova (ЕТ ,,Милена Митова")	Targovishte	Targovishte	Alvanovo	611	ASBB
19	SK Yudelnik (СК "Юделник")	Ruse	Slivo pole	Yudelnik	592	ASBB
20	Ecoproduct (Екопродукт)	Silistra	Silistra	Silistra	551	ASBB

Source: EASRLB

About

InteliAgro

InteliAgro is a legal entity working non-profit for public benefit. It was created with the support of the America for Bulgaria Foundation at the end of 2014. Our mission is to support the development of sustainable and competitive agriculture. We believe that the full potential of the sector can be unlocked through a combination of more effective and efficient management of resources, improving the conditions for doing agribusiness, reducing bureaucratic burdens and placing Bulgarian farmers on an equal footing with their European counterparts.

If you find this research useful and want us to make such materials more often in the future, if you share our mission and vision, you can support our work with ideas, information or a donation.

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