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## Serbian pig sector: an overview

Fact finding mission: opportunities for collaboration between Serbia and The Netherlands

A. van Bussel – van Lierop, C. van Wagenberg, D. Somers



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WAGENINGEN **UR**

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# Serbian pig sector: an overview

Fact finding mission: opportunities for collaboration between Serbia and The Netherlands

## Authors

A. van Bussel – van Lierop<sup>1</sup>

C. van Wagenberg<sup>2</sup>

D. Somers<sup>3</sup>

1 VIC Sterksel Wageningen UR

2 LEI Wageningen UR

3 Coppens Animal Solutions

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Wageningen UR Livestock Research

Wageningen, January 2015

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Livestock Research Report 843



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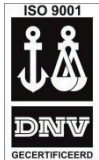
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# Foreword

Serbia is a country full of opportunities, also for a blooming pig sector. Its close location to Russia and current benefit of being allowed to export to that country provides a lot of opportunities for a profitable pig production chain. The Netherlands is a successful pig production country with many professional farmers, companies and knowledge institutes.

To evaluate the opportunities for collaboration between the Serbian and Dutch pig production chain, the Dutch Embassy in Belgrade organized a fact finding mission in November 2014. Wageningen UR Livestock Research was invited to formalize the mission. Coen van Wagenberg (LEI Wageningen UR), Anne-Marie van Bussel (Swine Innovation Centre Sterksel Wageningen UR) and Daan Somers (Coppens Animal Solutions) joined the mission. From the Dutch Embassy Maarten Wegen, Mila Mirkovic and Nichol Smith completed the group. It is also due to their professional preparation and guidance this fact finding mission was a success, thank you!

Adriaan Vernooij  
International project leader  
Wageningen UR Livestock Research



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# 1 Introduction

The Dutch Embassy in Belgrade, Serbia, requested Wageningen UR Livestock Research (WLR) to organize a fact finding mission to the pig sector in Serbia. The goal of the mission was to identify opportunities for Dutch companies and knowledge institutes to invest in and collaborate with the Serbian pig production chain. WLR invited Coen van Wagenberg (LEI Wageningen UR), Anne-Marie van Bussel (Swine Innovation Centre Sterksel of Wageningen UR) and Daan Somers (Coppens Animal Solutions) to join the mission. From the Dutch Embassy Maarten Wegen, Mila Mirkovic and Nichol Smith completed the group. This report contains the findings of this mission. The information was gathered by on-site visits and interviews with Serbian experts in the pig production chain. The structure of the report is based on the structure of the pig production chain: feed (Chapter 2), veterinary service (Chapter 3), primary production (Chapter 4), meat processing (Chapter 5), and knowledge and advice (Chapter 6). Finally the conclusions are wrapped up in Chapter 7.



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## 2 Feed

### 2.1 Structure and facts

Serbia has much good quality land for the production of raw materials such as grain, corn and soy. A large amount of this land is still unused or, when it is used, the harvest is relatively low. So opportunities for growth of raw material production exist.

Main stream agricultural production is organized in small scale multifunctional farms that focus on regional markets. Animals, including pigs, are mainly fed with raw materials produced on the own farm. Most pig producers produce their own compound feed. They complement their raw materials with premixes bought at one of the many premix companies that vary in size and advice level. Thus, pig producers themselves are responsible for storing and testing raw materials, and for formulating the feed composition. Pig producers struggle with producing good quality compound feed, because they do not invest in proper testing of the raw materials. Only a few feed specialists are available in Serbia to help farmers with feed-knowledge.

Serbia has quite some professional feed mills. These feed mills mainly sell compound feed in bags (from 10 to 40 kg) to distributors or directly to animal producers. Of the total amount of compound feed sold, only 30 to 40% is in bulk. The feed mills offer specialised nutritional advice to animal producers. The focus of some of these feed mills is international and professional. Some of them cooperate with foreign (also Dutch) feed mill companies and buy additives on the international market.

Currently a large certain percentage of animal producers does not trust feed mills. In the past there have been some incidents with feed quality and composition claims where feed companies did not deliver what was promised. Currently trust is growing, mainly among bigger pig producers that work more closely with their feed company, especially if this concerns a foreign company.

Feed companies often have a history of state ownership. The buildings and equipment are old, but solid and robust. Recently, a development can be observed to renew machinery with modern techniques like extrusion, pelleting, drying and bagging. Due to a decrease in number of animals since independence from the USSR in 1990, Serbian feed production has quite some overcapacity.

### 2.2 Opportunities for cooperation

Although the level of nutritional knowledge in feed companies seems quite high and their international network is good, there is still room for improvement. Feed companies could use advice on how to structure and modernise their feed mills and on how to commercially and technically advise pig producers. This is an opportunity for Dutch feed mill companies and knowledge institutes.

Serbian feed mills have a good network with international additive and feed companies. As there is much potential for growth of the pig sector and thus of the number and size of animal producers buying compound feed, animal feed production can be seen as a growing market that is interesting to target, for example via investing in feed mills.

# 2.3 Images

On farm storage of feed



On farm mixing of feed



Feedmill



Feed storage



Corn dryer



Testing lab



Quality checks



Soy



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## 3 Veterinary service

### 3.1 Structure and facts

In Serbia several veterinary matters are arranged at governmental level and obligatory for the pig producer. There are 12 institutes in Serbia with permission to execute these obligatory affairs such as vaccination for Classical Swine Fever. Besides that, some of these institutes and veterinarians offer commercial services for pig producers such as testing and analysis, treatment or specific veterinary advice. The income of the veterinarian is linked to sales of medication.

Pig producers have a focus on curative health management through medication or vaccination and hardly on preventive medicine or management. Thus, pig producers don't have farm specific treatment plans. In Serbia affordable and good veterinarians to help improve (pig) farm management are very scarce.

There are institutes with good veterinary laboratories, some of the equipment may be older but the knowledge seems present to do proper testing of blood, raw materials, feed, etc. Not all pig producers seem willing or able to use these laboratories.

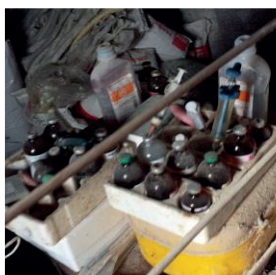
### 3.2 Opportunities for cooperation

The veterinary services function conduct their legal tasks and curative way of working relatively well. However, to further improve the health and technical results on pig farms, a move towards preventive management needs to be made. The knowledge to make that shift seems unavailable. This is an opportunity for Dutch research institutes to start (field)projects in which pig producers and veterinarians work together to improve the management. Also knowledge transfer directly to veterinarians can be interesting.

The need for good veterinary materials and medication is quite high. Materials that can help with on farm hygiene and health (biosecurity) are not generally available or known. There are opportunities for Dutch companies to sell the proper products together with advice to institutes and farms.

### 3.3 Images

On farm medication



Sample storage



Laboratory



Sample analysis



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# 4 Primary production

## 4.1 Structure and facts

With 114.000 out of around 149.000 agricultural producers in Serbia, the majority is backyard farms. Each backyard farm has a variety of arable products such as vegetables, fruits and grains, and a few cattle, chickens, sheep and pigs. They mainly produce for own consumption and sell the excess on the local market. Furthermore, around 34.000 so-called family farms exist. These are slightly bigger than backyard farms (< 100 animals) and produce for the regional market. Finally, there are around 400 commercial farms, that produce for the national and international market. Only a few of these are large integrations specialized in pig production. These farms often have their origin in a governmental farm from the USSR period.

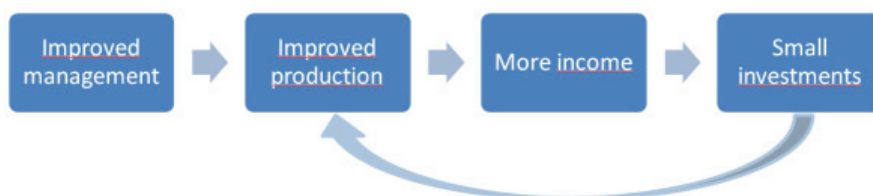
The last 10 years the number of pigs and number of farms with pigs decreased. There are several explanations for this, such as failed harvest of grain, corn and soy (due to draughts or excessive rain), high feed prices and low revenue prices of meat.

Due to the Russian ban of EU pigs and pig meat starting in August 2014, Serbia got the opportunity to deliver pig meat to Russia. In the first months of this ban, the average pig meat price in Serbia was very high with €1.70 per kg live weight, but in November 2014 prices dropped to €1.30/kg live weight.

The high meat price and increased demand from Russia has given an impulse to Serbian pig producers to increase production. This can be achieved by improved technical results (based on the same amount of sows/finishers) and by an increased number of pigs. Many Serbian pig producers think improved production can only be done by investing in new housing, equipment and genetic lines. Indeed, on many pig farms, housing, equipment and genetic lines are old. However, new modern housing, equipment and genetic lines are often too expensive to buy for most pig producers. It is difficult for a small pig producer to get a bank loan, because of high interest rates (15% or higher). In contrast, larger integrations can get a bank loan against an interest rate of around 4%. Governmental subsidies for increasing production are focussing more on crops or are only given after investments have been made. Notwithstanding the difficulties to invest, without new housing, equipment and genetic lines, further improvement of technical results could be achieved by improved management without too high financial investments at:

- Insemination (farrowing rate %)
- Feed (of farm production and schedules)
- Preventive health
- Genetics

The schedule below describes a way to create financial space for small investments, that can again improve production.



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A specific problem for fattening pig producers is the difficulty is to buy batches of good piglets. They currently buy left-over piglets of backyard farms on the local market. For piglet producers, a specific problem is the lack of good breeding material. Most farmers breed their own sows and therefore work with quite a lot of different breeds. The by-products of these pure bred animals lower the production of the farm. Most farmers use the genetics as the main excuse for their low production, but even with the current genetics, there is room for improvement.

For advice on management or housing, a pig producer can go to his veterinarian or the extension service. However, the level of knowledge of extension service members on pig production generally is low. Veterinarians might be less interested to improve management, they rather prescribe medicines, because their income is linked to the sales of medicines.

## 4.2 Opportunities for cooperation

The knowledge level about husbandry of pigs of Serbian pig producers is acceptable, but many improvements can be made especially in management. Although pig producers in Serbia seem hungry for knowledge and improvement, investing in knowledge transfer can be a big step. Opportunities exist in training-the-trainers, such as veterinarians and advisors from the extension service. Working with a small group of farmers in networks could help to slowly start a process of change and let them be an example to other farmers. However, this is culturally a big challenge, because pig producers rather buy new housing, equipment or genetics to improve productivity than to ask for advice how to change their management.

Genetics on most farms are relatively old, not structured and the focus is on producing piglets and finishers, not on breeding. Gilts of new genetic lines can increase production levels. But only buying gilts of new genetic lines is not the solution, farm management needs to be changed as well to fully utilize the genetic opportunities.

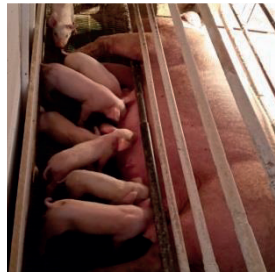
Many farms have old equipment and hardware and are looking for new equipment, so opportunities for sales of equipment and hardware companies exist. However, especially for the smaller pig producers getting enough capital to buy new equipment and hardware can be difficult, due to high interest rates on bank loans. Opportunities exist in cooperation between foreign investors already investing in Serbia and Dutch (management) knowledge, genetics, equipment and hardware companies.

## 4.3 Images

Pig farm



Sow with piglets



Farm interior



Pregnant sows



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# 5 Meat processing

## 5.1 Structure and facts

Backyard and family farms deliver their finishers to small local slaughterhouses, with the slaughter of around 20 bulls and 100 pigs per day. Meat processing is usually done at the slaughterhouse. These short production chains are not very efficient and professional, but are part of the Serbian tradition and culture. The slaughterhouses produce good quality local and traditional products, mostly sausages, smoked and dried products. This production goes back for many years and has a good market. Pigs often are sourced in small numbers at many locations resulting in low uniformity and varied quality of the carcasses. Slaughterhouses often slaughter more than one animal type (e.g. cattle, sheep, finishing pigs and piglets) in the same line. Efficiency and hygiene at these locations are poor. These local slaughterhouses and meat processing locations do not have a permit for export to EU countries, and it is not likely that they will get this permit on a short notice. Although their equipment is older and generally second hand, it still functions reasonably well.

Serbia has only a few very large slaughterhouses and meat processing plants delivering to big supermarkets and for export. These slaughterhouses meet international hygiene standards and often have contracted pig producers for a steady supply of good quality pigs.

Serbia has a special treaty with Russia and they only have to pay a very low import duty for pig meat. This treaty is already many years in place, but in 2014 due to the Russian ban of EU pigs and pig meat, Serbia was provided with the opportunity to deliver pig meat to Russia. Furthermore, Serbia is part of the Central European Free Trade Agreement (CEFTA). Of the countries in CEFTA, Serbia has the best geographic and climatic circumstances for feedstuff production and for animal husbandry. This means that Serbia is the main producer of pig meat for all countries in CEFTA.

Due to a decrease in number of animals since independence from the USSR in 1990, many Serbian slaughterhouses have around 30% overcapacity. This overcapacity can quickly be turned into production.

## 5.2 Opportunities for cooperation

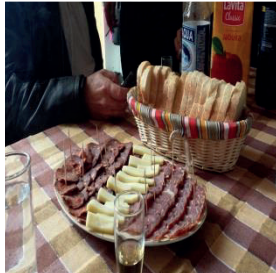
Opportunities exist to sell slaughter line and meat processing equipment. However, especially for the smaller slaughterhouses getting enough capital to buy new equipment and hardware can be difficult, due to high interest rates on bank loans. Because many of the smaller slaughterhouses have overcapacity in slaughter lines, for them it is not necessary to invest in expansion in order to increase production.

Serbia is the main producer of pig meat for all countries in CEFTA. Furthermore, Serbia has a special treaty with Russia and they only have to pay a very low import duty for pig meat. These markets are more easily reached from Serbia than from the EU, although compliance with the demands from these markets is essential.

Hygiene in Serbian slaughterhouses is poor. To improve the general hygiene level in slaughterhouses in Serbia, already some pre-EU-accession projects, such as Twinning-projects, have started.

# 5.3 Images

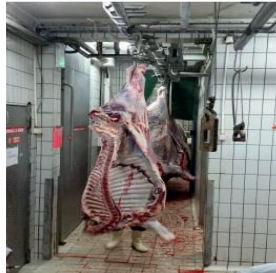
Local products



Local products



Slaughter line



Carcasses



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## 6 Knowledge and advice

### 6.1 Structure and facts

Because most farms combine many agricultural sectors in plant and animal production, advisors from the extension service have to provide advice on all these sectors. In Serbia, plant and fruit production is more important than animal production. Within animal production, milk and beef production are most important, followed by chicken production and pig production. Only a few specialized pig husbandry advisors are available in the country. Veterinary advice is not included in the extension service. The advice from the extension service is free of charge for pig producers. This complicates development of institutions for commercial advice, because the question is whether farmers are willing to pay.

### 6.2 Opportunities for cooperation

There are opportunities to improve the knowledge level of animal producers, advisors, veterinarians but also on agricultural research institutes and education institutes. A lot of people working in the business are very interested in the Dutch way of working and want to improve the Serbian production chain. Covering the costs, however, can be a challenge, although the extension service already invests in training sessions, as well as some veterinary institutes.

Currently, veterinary advice is not included in the extension service. However, Serbia is exploring the possibility to integrate veterinary advice of the veterinary officers into the extension service. Opportunities exist for this type of veterinary advice to improve management on pig farms. For pig producer acceptance of such advice, it is important to quantify the economic benefits of changed farm management. This way the farmer can draw conclusions towards the possible payback time of investing in knowledge.

### 6.3 Images

University



Exchanging knowledge



Sharing



Listening





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# 7 Conclusions

In the previous chapters an overview is given of the specific parts of the Serbian production chain together with the opportunities for cooperation with the Dutch pig production chain. Below the main conclusions are listed:

## Feed

- Serbia has much good quality land for the production of raw materials.
- Most small pig producers produce their own compound feed, but are struggling with quality.
- There are some professional feed mills that are old but sufficient, with overcapacity.
- The feed mills can be optimized and there are chances for Dutch companies to invest in them.
- Compound feed production is a growing market that is interesting to target.

## Veterinary Service

- Several veterinary matters are arranged at governmental level and obligatory for the pig producer.
- Good commercial veterinary advice is not easily available and linked to sales of medication.
- Pig producers have a focus on curative health management.
- Big improvements in (health) management can be made, this is an opportunity for Dutch companies and institutes.

## Primary production

- The majority of agricultural producers is backyard farms (114k), a smaller amount is called family farms (34k) and a small number (400) is a commercial pig farm.
- Serbia has some good integrations specialized in pig production, often with an origin as a governmental farm.
- Due to the possibility for Serbia to deliver meat and pigs to Russia and the unique position in the CEFTA countries there are market chances for the future.
- Housing, equipment and genetics are relatively old and knowledge about management is lacking.
- There are farmers willing to expand and increase pig production but bank loans have high interest rates (up to 15%).
- Knowledge transfer to individual farmers can be difficult to arrange economically but train-the-trainer sessions can be interesting for Dutch institutes and companies.
- Larger integrations are interested in Dutch equipment companies, Dutch breeds and Dutch advice.

## Meat processing

- Local and traditional products have a good market in regional production chains and small slaughter houses.
- Efficiency and hygiene at small slaughter houses are poor and they can not export to EU countries.
- Serbia has a few very large, and good, slaughter houses and meat processing plants that can deliver to big supermarkets and for export. Currently there is overcapacity in the slaughterlines.
- The materials are mainly old but functioning, there is room for efficiency and hygiene improvement.
- Russia and CEFTA countries are growing markets for meat.

## Knowledge and advice

- Only a few specialized pig husbandry advisors are available in the country.
- The advice from the extension service is free of charge but veterinary advice is not included.
- There are opportunities to improve the knowledge level of primary producers, advisors, veterinarians but also on institutes.

The overall conclusion is that Serbia has a great potential for a blooming pig industry. The quality of the land for feed production is good, the location between EU, Russia and within CEFTA countries is optimal for future markets. Knowledge, hardware and genetics can be improved which makes it an interesting country for Dutch companies to invest in.

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## Appendix 1 List of contacts

<b>Nr.</b>	<b>Organisation</b>	<b>Contact</b>	<b>Website and email</b>
1	UoB, Faculty of Agriculture, Department of Agro Economy	Natalija Bogdanov	natalija.bogdanov@agrif.bg.ac.rs
2	UoB, Faculty for Veterinary Medicine, Department for microbiology and Dept for animal nutrition	Dejan Krnjajic and Dragan Sefer	<a href="http://www.vet.bg.ac.rs/">http://www.vet.bg.ac.rs/</a> Dejan.krnjaic@vet.bg.ac.rs Dragan.sefer@vet.bg.ac.rs
3	PKB Imes Pig farm; feed processing plant;	Smilja Latinovic	Smilja.latinovic@imes.rs
4	Association of individual pig producers	Zlatan Djuric	Zlatan.djuric@gmail.com
5	Animal feed factory – Proteinka	Miroslav Pavlovic	office@proteinkafsh.rs
6	Sto Posto Feedmill	Vladimir Mijatovic	office@stoposto.rs www.stoposto.rs Vladimir.mijatovic@stoposto.rs
7	IPN experts - on pigs and poultry – Institute for applied science	Milovan Pusic	
8	Vojvodina representatives	Aleksandar Davidov and Goran Jurlina	
9	Veterinary Spec Institute Kraljevo	Miso Kolarevic	miso.kolarevic@gmail.com office@vsikv.com vetiskv@tron-inter.net
10	Kotlenik –promet	Milomir Tosovic	
11	Veterinary Directorate	Dejan Bugarski	vetuprava@minpolj.gov.rs
12	Sector for Agrarian Policy	Tomislav Topalovic, policy officer Mirko Novakovic, policy officer	
13	Dutch Embassy Belgrad	Laurent Stokvis	

To explore  
the potential  
of nature to  
improve the  
quality of life



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Wageningen UR Livestock Research  
P.O. Box 338  
6700 AH Wageningen  
The Netherlands  
T +31 (0)317 480 10 77  
E [info.livestockresearch@wur.nl](mailto:info.livestockresearch@wur.nl)  
[www.wageningenUR.nl/livestockresearch](http://www.wageningenUR.nl/livestockresearch)

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Together with our clients, we integrate scientific know-how and practical experience to develop livestock concepts for the 21st century. With our expertise on innovative livestock systems, nutrition, welfare, genetics and environmental impact of livestock farming and our state-of-the art research facilities, such as Dairy Campus and Swine Innovation Centre Sterksel, we support our customers to find solutions for current and future challenges.

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