

BREEDING AND PRODUCTION OF PIGS IN POLAND

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Pigs are one of the main species of livestock bred on Polish agricultural farms. The population of pigs at the end of March 2012 amounted to 11,478, and in comparison with the same period in the previous year it was reduced by 12.4%. For the last six years, there has been a decrease in the pig population, which occurred in all technological groups of a herd. The population of piglets, weaners, fatteners, and pigs kept for raising has decreased too (including sows). Pig population forecasts for the end of 2012 show further decrease by 9.2% (data according to the Foundation of Assistance Programmes for Agriculture).

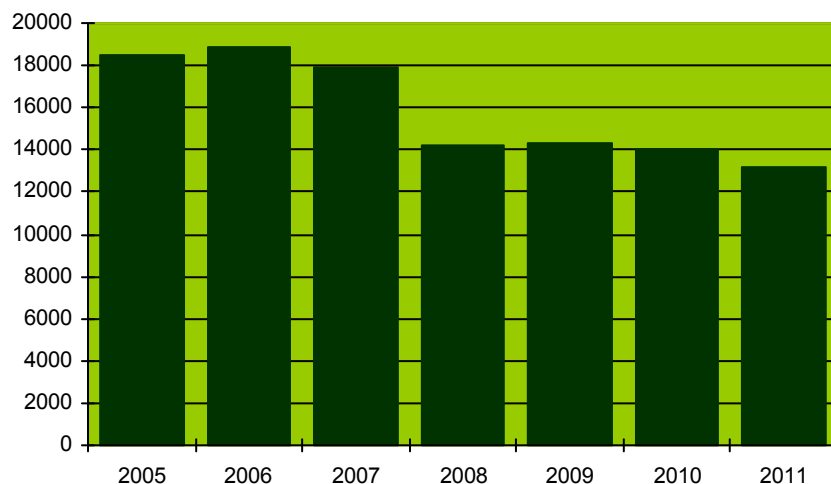
In 2010, there were 2,277,613 agricultural farms in Poland, of which 398 thousand dealt with pig breeding (17% of all agricultural farms). In comparison with 2007, their number decreased by 40%, as in 2007 we had 664 thousand of such farms. Both then and now, approximately 99% are private farms. They breed many different types of animals, and therefore the number of pigs is never very high. Pig production there is small scale, limiting the possibility of achieving satisfactory profits. Approximately 34% of farms keep pigs for their own needs only – up to 4 animals. Some 33% of farms can be defined as small farms run for profit, with 5 to 19 pigs. Farms which can cooperate with meat industry are those with 20 and more pigs, and they constitute 32% of all pig breeding farms. Unfortunately, only 0.5% of farms deal with large-scale breeding. Each of them keeps over 500 pigs, and they are the best partners for meat industry (data according to the General Agricultural Census 2011).

The production capacity of a given farm, and more precisely the number of pigs it keeps, defines its potential for economic profits. The sale of pigs on the hoof, correlated with the number of sows kept, was between 4

and 250 tonnes per one farm. The prolificacy was average, and amounted to 17-19 piglets. We also noted an increase in the prices of pigs on the hoof as the production scale grew. Hence, farm profits may be said to be related to the number of pig kept.

Apart from farms breeding different species of animals, there are also local differences in the number of pigs. The majority of pigs are bred in the *Wielkopolskie* province. It is followed by the *Kujawsko-pomorskie* province, and then *Mazowieckie*, *Łódzkie* and *Lubelskie*. The population of pigs in these five provinces constituted 68% of the entire pig population in Poland in 2010. The lowest number of pigs were kept in *Podkarpacie* and *Silesia* regions, as well as in the *Lubuskie* province. The factor based on which local differences in the number of pigs are measured is their stock volume per 100 ha of agricultural lands. The mean stock volume amounted to approximately 100 animals per 100 ha, with the largest stocks in the *Wielkopolskie* and *Kujawsko-pomorskie* provinces (268 and 165 animals respectively), and the lowest in the *Śląskie*, *Lubuskie* and *Podkarpackie* provinces (31.5, 37.1, and 43.4 respectively).

Figure 1. Number of pigs (in thousands) in Poland



Distribution by breed

The proportion of each breed in a population is best illustrated by the number of sows examined as to their reproduction performance. Data for 2011 show that Polish landrace sows and Polish large white sows are the two most numerous breeds. Duroc, Pietrain, Puławska and Hampshire are less frequent (Figure 2). The most numerous are the Polish landrace pigs, but the difference between them and the Polish large white is decreasing. The third on the list is the Puławska breed, with more than 800 sows. Such a high number is thought to be the result of work by breeders and animal husbandry experts. The Puławska breed, as one of three Polish native breeds, is covered by the National Programme for the Protection of Farm Animal Genetic Resources from which farmers keeping this breed receive some financial support.

Another probable reason for this number of Puławska sows is believed to be increased consumer interest in their meat, and the introduction thereof on the market as specialty foods. The Duroc breed is fourth in terms of the number of sows under assessment. It is popular because of its high quality meat, therefore there is no significant decrease in the population of this breed in comparison with previous years. Pietrain pigs cannot compare to Duroc pigs in terms of the quality of meat, but their number is also significant, especially as regards the number of sows assessed in terms of their reproduction performance. They have large participation in commercial crossing aimed at improving of fleshiness of fatteners. The Hampshire breed has the smallest population of assessed sows in Poland, and the popularity of this breed decreases also in the entire Europe.

Figure 2. Number of sows assessed as to their reproduction performance, as of 31/12/2011 (POLSUS)

Breed	Number of sows
Polish landrace	6,317
Polish large white	5,149
Duroc	736
Pietrain	513
Puławska	804
Hampshire	67
Total	13,586

Breeding work

Breeding tasks related to pig breeds kept in Poland differ depending on whether they constitute a maternal or paternal component. As regards breeds considered maternal (here mainly Polish large white and Polish landrace, the improvement of which is treated with utmost importance), breeders focus on improving reproduction performance traits. In 2011, the mean number of Polish large white piglets born alive in a litter amounted to 11.54, and the mean number of Polish landrace piglets born alive amounted to 11.68. Yet, the mean values for this trait are unsatisfactory, therefore the work on further improvement are ongoing. Breeding work is also aimed at increasing the number of piglets surviving until day 21 of their lives and the number of piglets weaned. As regards paternal breeds, these traits are at a lower level than is observed in maternal component pigs, but still good enough to obtain profit. Within the last few years there has been an improvement in prolificacy, which was significantly influenced by shortening the farrowing interval. In nucleus herds, the number of weaned piglets is 23 per year.

Moreover, breeding work is conducted with the aim to estimate fattening and slaughtering performance rate. Purebred and crossbred (Hampshire x Pietrain, Hampshire x Duroc, Duroc x Pietrain) boars are examined.

In paternal breeds, standardized daily gains (from birth until the age of 180 days) were between 667 and 708 g, whereas in crossbred boars the gains were 675-724 g. Lower values of fattening traits are found in the Puławska breed, but it is explained by its origin and breeding work performed on it.

Among slaughtering performance traits, we observe the decrease of pork fat thickness. The thinnest layer of fat is found in Pietrain boar piglets, and gilts of paternal breeds have thinner layers of subcutaneous fat. Within the last few years, the increase of fatterer fleshiness have been noted, and currently it is estimated at 54.8%.

The Polish Pig Breeders and Producers Association ('POLSUS') evaluates pig reproduction performance and keeps breeding records. It is an autonomous organization which operates in the whole of Poland. Tasks related to breeding work are performed in accordance with the assumptions of the National Breeding Programme, which specifies the rules of works carried out in herds. The purpose of the programme is to the best genetic progress in respect of the key reproduction performance traits. The expected effect of this is the increase of animal production efficiency and the production of pigs on the hoof with good enough quantity and quality. Apart from performing reproduction performance evaluations and keeping breeding books, 'POLSUS' performs operations related to agriculture, the purpose of which is to increase economic efficiency of pig breeding and production farms.

Breeding issues in Poland

One of the main issues of pig breeding in Poland is that farms breed too many species of animals at one time. Production on small scale is becoming unprofitable, since financial outlays spent on feeding and keeping animals exceed profits. Moreover, small farms are unable to increase the number of bred animals, and therefore their situation fails to improve.

Another problem is the disappearance of 'equity links' between pork manufacturers and meat-processing plants, as there is no permanent cooperation between a breeder and a meat processor to guarantee a certain level of stability in the trading of pigs on the hoof, as well as long-term flow of funds for the supplied material.

When Poland joined the European Union, the borders were opened and the flow of goods in both ways made possible. Food products turnover started to grow, and now food-processing plants can choose who they want to cooperate with. Thus, they can decide where they buy their meat material from. Very often pigs on the hoof imported from other European Union countries are cheaper than those bred in Poland. This also causes the decrease of pig population in Poland. The situation is made worse by the more and more frequent import of piglets which contributes to the significant decrease of the foundation stock population in Poland, and especially of the number of sows.

Another reason for the problems in the pig production sector is state policy. The government fails to take action and does not have the right agricultural policy. EU subsidies are insufficient and should be supplemented by support from the Polish government.

Direct subsidies for pig breeding

The pig breeding subsidy scheme is aimed at small and medium breeders who breed Polish native breeds. There

are three native breeds of pigs in Poland: Puławska, White zlotnicka and Złotnicka spotted. EU subsidies for these breeds are granted from the agriculture and sustainability scheme 2007-2013 as part of the 'Protection of Farm Animal Genetic Resources in Agriculture' project.

The main purpose of this project is to support farmers financially, so that they do not need to give up native pigs due to small profit. Besides, it encourages farmers to purchase piglets, sows and boars of these breeds, and develop the breeding capacity of their farms. We have to take into account that significant decrease of pig population in the last dozen or so years has translated into the population volumes of these three breeds.

Breeders who apply for subsidies as part of the project may expect 570 zlotys per each sow and boar of Puławska, White zlotnicka or Złotnicka spotted breeds.

To be granted financial support, it is necessary to keep a proper herd documentation. A breeder is obliged to register breeding animals in a herd book for a given breed. Moreover, documentation is also required for the reproduction performance value of a breed, and the scale of this value is determined in Brussels.

The regulations on granting funds also specify how many animals each herd should contain and how many animals one needs to have to be eligible. As regards Puławska breed, entitlement to financial support starts with 10 sows, whereas the minimum number of white Złotnicka and Złotnicka spotted sows is 8. The regulations also specify the maximum number of animals in a herd. A breeder may breed no more than 70 Puławska pigs or 100 White zlotnicka or Złotnicka spotted pigs. Polish native breeds are valued not only for the fact that they are bred in Poland, but also because their meat is used to produce traditional Polish cured meats with specific technological properties and taste qualities.

Figure 3. Selected reproduction performance traits of native breeds (National Research Institute of Animal Production, Kraków; M. Świątkowska; POLSUS)

Trait	Breed		
	Puławska	White zlotnicka	Złotnicka spotted
General characteristic	High milk yield Good maternal traits Longevity Very good adaptation to environmental conditions Immunity to diseases		
Weight of adults (kg): Sow Boar	200-280 250-350	200-250 250-300	200-240 240-280
Meat content in carcass (%)	53.50	54.75	46.40
Number of piglets in a litter, pcs	11.05	9.50	9.25
Number of piglets aged 21 days, pcs	10.11	8.72	8.31

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