THE ROLE OF ENDOGENOUS FACTORS UPON SWINE PRODUCTIVITY

ROLUL FACTORILOR ENDOGENI ASUPRA PRODUCȚIILOR SUINELOR

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Abstract: *The main objective in swine breeding and exploitation technology is to obtain animals with characteristics that will allow producing a higher quantity of good quality meat, in advantageous economical conditions. Beside the main production – meat and fat – after slaughtering the pigs can be obtained a series of secondary products and waste that can be valorise, so from the from the live weight its not lost almost anything. Endogen factors with influence upon swine production are: genetic, gender, number and weight of the pigs at birth, milk production of the sows, number and weight of the wean pigs, sexual maturity, capacity to use the feed, health status and individual particularity.*

Key words: *endogenous factors, production, swine, influence*

INTRODUCTION

Main objective in the area of pigs breeding is represented by obtaining of animals that will product higher quantity of superior meat, in advantages economically conditions. The final result of breeding and exploitation of swine is represented by the meat and fat as main products after slaughtering and a large type of secondary products: skin, hair, internal comestible organs; other products: blood, stomach, intestine, nails; and waste products that can be valorise, observing that from the live weight of the swine is lost almost nothing. The factors that determinate the potential

production, real and economical of meat, can be classify in: *endogenous factors* (or genetically) and *exogen factors* (respectively environment). **Potential production** is determinate by genetically factors, depending on breed, line, family and gender, number and weight of the pigs at birth, sows milk production, number and weight of the wean pigs, precocity and feed conversion, body condition and health status, also individual particularities of the animals [3,4].

Real production is the one obtained in real condition of exploitation, determinate by the interaction between endogen and environmental factors. Is wanted that the real production to be as close as possible or even identically to the potential production; this can be achieve only by insuring optimal housing, care and feed, correlated with the genetic and biology of the animals. From the exogen factors (environmental and technology) feeding has a high influence upon the rhythm and economically breeding and finishing, and upon the quality of the carcass obtained after slaughtering.Regarding the **economically production** we can say that an efficient meat production can be obtained after a perfect correlation between the biological material used and the technology applied. The swine breeds perfected are economically only if insuring technologically request at optimal level; they are not economically in not proper exploitation conditions. Primary breed request low level for growing and finishing, but correspondent to the breed [1].

MATERIAL AND METHODS

Through this scientifically paper we try to identify and analyze the way that some endogen factors can influence swine production, establishing the role of the commercial hybrid upon some value of meat pH, also the influence of gender upon growing performances.

RESULTS AND DISCUSSIONS

From endogen factors that influence swine production we want to remind:

- One of the endogenous factors is the **race**, which influence in an important way the meat production obtained from swine. So, specialized races for meat production are: Large White, Duroc, Hampshire, Yorkshire,

Landrace, Pietrain, but especially lines and families from those races that have high production potential for meat, from quantity and quality point of view. In identically conditions for growing and finishing, different breeds show different potentiality for quantity production, but especially meat quality, obtaining superior quality carcasses from different commercial hybrids.

- After studying two lots of hogs with the same average weight upon slaughter (91.5 kg) - the 1st lot with 101 commercial hogs (Duroc x F1) and the 2nd lot with 102 PIC commercial "stress-free" hogs (PIC x F1) produced in the same feeding and microclimate conditions - we could see a higher standard - deviation in the lot from terminal PIC boars, compared to the one from the terminal Duroc boars. The PIC line studied of a synthetic line of the most worldwide performing ones. (Table 1).

Table 1.

Variation of pH depending on genetic factor

Commercial hybrid	Final pH variation limits	pH value (average)	Standard deviation (%)	Muscle tissue (%) (average)
Lot 1 Duroc x F1	5,31 – 6,28	5,82	3,96	50,3
Lot 2 PIC x F1	5,10-5,78	5,68	4,23	54,4

Sursa: prelucrare diferiți autori

As we can see, carcass percentage that did not range between 5.6 and 6.2 (pH) values is in the traditional commercial hybrid 3.96, and in the PIC commercial hybrid 4.23. this phenomenon can be explained by the fact that 1st lot presents an average percentage of lower muscle tissue (50.3%), which implies a higher fat intra-muscular percentage and a lower glycogen - lactic acid decomposition ability. On the contrary in the 2nd lot there is a medium percentage of higher muscle tissue (54,4%) implicitly correlated with a lower pH value. In this context, the decision of pork producers to produce higher percentage muscle tissue hogs with great advantages in marketing, but with a pH at the Bottom limit of admissibility or to produce a less economic carcass (less muscle tissue) but a superior from the point if view of acidity. This has also led to the adoption of some corrective

measures by responsible organisms in the swine raising sector in some European Union nations.

- Another important factor is the **gender** that influences in a significant way the results of animal finishing. The gains obtained by boars are always higher than the one obtained from gilts. So, from table 2 we can notice that the average daily gain of the boars is by 50 grams higher comparing to the one obtained from gilts and hogs. Also, that are differences regarding the feed conversion, slaughtering efficiency, the thickness of the back fat and the surface of *Longissimus dorsi* muscle.

Table 2

Impact of gender on meat production

Specification	U.M	Boars	Hogs	Gilts
Average daily gain	g	655	695	604
Feed conversion	kg	3,06	3,45	3,24
Slaughter efficience	%	74,20	74,60	75,10
Back fat thickness	mm	18,9-18,7	23,2-21,6	22,0-20,1
Longissimus dorsi muscle' surface	cm^2	24,8	21,7	25,0

Sursa: Prelucrare diferiți autori [1,4]

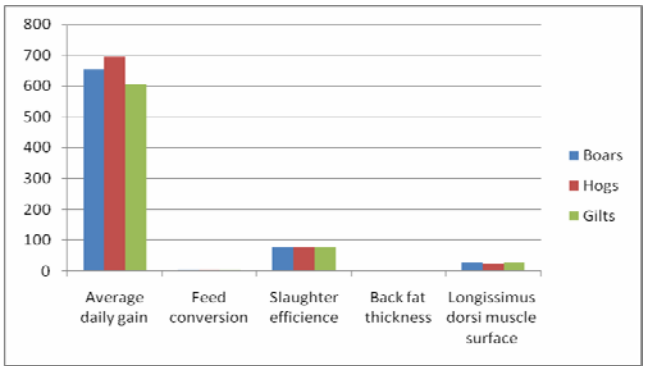


Figure 2. Impact of sex on meat production

- **The number and weight of pigs at birth** – it is influencing the meat production, in the way that the pigs that have a high weight at birth (over 1.2 kg) are more robust and vivacious, grow faster and achieve growing gains better during the finishing period.

- **Sows milk production** – this characteristic, expressed by the *capacity of milking*, influence a lot piglets live weight and vitality [2,3]. Was noticed that always the piglets of the sows that have good milk production develop better, achieve higher body weight at 21 days, at weaning and, generally, during the entire growing and finishing period, until slaughtering.
- **Number and weight of the wean pigs** – influence the total quantity of meat produced by each sow. Was forecasted that each sow to sell at list 1.45 tones of live weight per year.
- **Early sexual maturity** of the animals determinate the length of the growing period; the growing period is shorter for breeds perfected that achieve higher body gains with lower feed consumption.
- **Capacity to valorise the feed** is positive correlated with the average daily gain and it is higher for young animals compared to the adults, also, for perfected breeds comparing to ancestral ones.
- **Health status** – influence directly meat production and feed consumption because only the healthy animals assimilate good the feed and achieve weight growth.
- **Individual particularities** – temperament, body condition, constitution etc. can influence growing rhythm and feed valorising.

CONCLUSIONS

When is estimated a breed or some individuals production need to take in consideration potential production, real production and economical production, together with the factors that are determining those parameters.

Regarding the gender as factor that can influence swine potential production, it is important to mention the fact that the gains obtained from boars are always better than the ones obtained from gilts.

In the actual economical conditions, when the feed price is continually increasing, an important place regarding the swine production is represented by the capacity of the animals to value the feed, positively correlated with the average daily gain.

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