

## RESEARCHES ON THE GROWTH PERFORMANCE OF THE VIETNAMESE PIGS EXPLOITED IN ROMANIA

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### Abstract

*Growth of vietnamese pigs has taken some measure among small breeders in Romania. Information on the breeding performance and qualities of these pigs is contradictory and sometimes exaggerated. The present paper aims to study reproductive and growth performance in 2 of the most widespread Vietnamese pig breeds in Romania: Mong Cai and Co. Reproduction performances were studied on 10 sows, 5 from each breed, for 3 litter. The production performance was performed on 40 pigs, male castrated and females, 20 of each breed, who were followed from weaning until 1 year of age.*

*Results obtained for age of first estrus, litter size, weight of first day, weight of weaned pigs, parturition interval and number of parturition on year were as follows: 4-5 months, 6 – 8 piglets, 0.41 kg, 3-4 kg, 6 -7 months, 1.6 – 1.7 partuition for breed Co and 6-8 months, 7 – 12 piglets, 0.45 kg, 5 - 6 kg, 5 - 6 months, 1.5 - 2 partuition for breed Mong Cai. Similarly, growth results are higher at breed Mong Cai versus breed Co. As a conclusion, this breeds have performance for reproduction and breeding inferior to local breeds and we do not recommend them to grow.*

**Key words:** vietnamese pigs, performance, reproduction, production

### INTRODUCTION

In Vietnam, local pig breeds are very diverse, with about 60 genotypes distributed in different regions of the country [6]. The main characteristics of indigenous breeds in Vietnam are small size and slow growth. All Vietnamese breeds show high prolificacy, adaptation to poor-quality feed, tropical climate and disease resistance, with a high proportion of fat in the carcass [9].

They are mainly grown in rural areas and their food is based on agro-industrial by-products [5]. Often, these breeds can grow in the free system so that the proportion of feed fodder in their ration is at a high level. Local Vietnamese pigs account for about 26% of the national pig population and are mainly grown in the rural area [2]. However, in recent years some new genotypes have been promoted while others have almost disappeared. For example, the Mong Cai breed was strongly promoted in the northern region of Vietnam and the Ba xuyen in the

southern part, replacing other local breeds with low performance. Compared to the breed breeds, Mong Cai pigs have a lower casing with a lower lean meat content and a higher dorsal fat [10]. Compared with other local breeds, Mong Cai pigs have superior reproductive characteristics and growth performance [7].

In Vietnam, the average body weight at slaughter (at 6 months of age) is about 63 kg, in improved breeds of 83 kg, at metiși (local sows and boar from improved breeds) is on average 60 kg and local breeds 39 kg. The distribution of pig production varies between different ecological regions, depending on socio-economic factors and other factors as well as consumption habits of meat in different regions [6]. The The most widespread Vietnamese local breeds are: Muong Khuong, Co, Meo, Tap Na and Mong Cai (Figure 1). Muong Khuong boars are about 150 kg and sows about 130 kg of BW. The animals are black with mostly white spots at head, tail, and feet. The small-sized Co (boars are 30 to 40 kg, sows 30 to 35 kg of BW) has a black color. The breed Meo is black with white spots; boars are about 60 kg

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The manuscript was received: 10.10.2017

Accepted for publication: 25.02.2018

and sows about 50 kg. Tap Na is a small-sized breed (boars are about 65 kg, sows about 50 kg of BW); the color varies between entirely black and black with white spots at the head, tail, feet, and belly. Mong Cai is the major local breed in North Vietnam, is medium-sized (boars are 100 to 110 kg and sows 90 to 100 kg) and shows high fertility, with an average litter size at birth of approximately 12. The head of Mong Cai is black together with a black saddle over the middle of a concave back; shoulder, abdomen, and legs are white [8].



Figure 1. Vietnamese pig breeds: Muong Khuong; (b) Co; (c) Meo; (d) Tap Na; and (e) Mong Cai [8]

Studies show that, in general, Vietnamese pigs can make better use of fiber-rich diets than improved breeds, because they have been formed in deficient feed conditions. The Mong Cai breed, which is the most common indigenous breed in Vietnam, has been raised for many years by poor farmers [7].

In Romania, Vietnamese pigs have begun to be raised since 2010. Their strengths are: as compared to other breeds, Vietnamese pigs eat less and are herbivores, so food expenses are lower; poor maintenance costs, being resistant to illness do not require special maintenance conditions; relatively good prolificity; - if grown with volume feed, when pigs has slaughtered, the back fat thickness will be reduced.

Growth of vietnamese pigs has taken some measure among small breeders in Romania. Information on the breeding performance and qualities of these pigs is contradictory and sometimes exaggerated. The present paper aims to study reproductive and growth performance in 2 of the most widespread Vietnamese pig breeds in Romania.

## MATERIAL AND METHODS

Establishing the number prolificacy of sows farrowing in the study, involving the taking of 10 sows belonging breed Co sows and 10 sows breed Mong Cai. It was considered necessary for both batches of the experiments, the following indicators to study reproductive: age of first estrus (months), litter size (piglets), weight of first day (kg), weight of weaned pigs (kg), parturition interval (months), and number of parturition on year. Reproductive traits were analyzed during three calving. Sows were maintained throughout gestation in the group of 20 individuals, in the paddock of approximately 500 m<sup>2</sup>. Calving period of maternity took place in individual boxes with an area of 8 m<sup>2</sup>. The production performance was performed on 40 pigs, male castrated and

females, 20 of each breed, who were followed from weaning until 1 year of age. To determine the carcass quality were sacrificed four pigs, two females and two castrated males, from each breed. The software used for statistical analysis was SPSS. We calculated the average, standard deviation, coefficient of variation and statistical significance of differences between samples, using Anova Single Factor.

## RESULTS AND DISCUSSION

Age optimal for breeding sows occur when body weight reach a certain influencing the number of piglets produced, and their weight at birth. In table 1 are shown the reproduction performance of Vietnamese sows taken in the study.

Table 1 Reproduction performances

Parameter	Breed		Data from literature	
	Co	Mong Cai	Co	Mong Cai
<b>Age of first estrus</b> (months)	4-5	6-8	3-4	5-7
<b>Litter size</b> (piglets)	6 - 8	7 - 12	6 - 7	10 -14
<b>Weight of first day</b> (kg)	0.41	0.45	0.40 – 0.42	0.45 – 0.47
<b>Weight of weaned pigs</b> (kg)	3.0 – 4.0	5.0 – 6.0	2.5 – 3.5	5.5 – 7.0
<b>Parturition interval</b> (months)	6 - 7	5-6	9 - 10	5 - 6
<b>Number of parturition on year</b>	1.6 -1.7	1.5 – 2.0	1.2 – 1.3	1.5 – 2.0

Age at first estrus had values between 4 and 5 months at sows of the Co breed and 6 and 8 months at sows of the Mong Cai breed. When compared with the data presented by literature [1, 3, 4, 5, 9] we observed that value from Romania are higher than those obtained in Vietnam. The prolificity, during the three parturition, was between 6 and 8 piglets at Co breed and 7-12 piglets at Mong Cai bred. And to this parameter we notice differences between the performances obtained in Romania and those obtained in Vietnam [3]. Weight of first day had values close to the performance in Vietnam, averaging 0.42 kg in the Co breed and 0.47 in the Mong Cai breed. Weight of weaned pigs recorded higher values

in Romania compared to Vietnam [1, 3, 4, 5, 9], a possible explanation being the concentrated feeds administered in higher percentages in the sows' food in our country. Parturition interval and Number of parturition on year have recorded better values in our country probably due to better maintenance conditions and more balanced nutrition. Another explanation for differences in performance would be, we believe, that sows studied are not pure races.

As a general reference on the evolution of body weight of the pigs in experimental batches can be argued that the issues resulting from experimental research are close to those recorded in literature (table 2).

Table 2 Evolution of body weight (kilograms)

Parameter	Breed		Data from literature	
	Co	Mong Cai	Co	Mong Cai
Average weight at parturition (kg)	0.415	0.454	0.40 – 0.42	0.45 – 0.47
Average weight at 2 months (kg)	3.8	6.1	3 - 4	5.5 – 6.5
Average weight at 4 months (kg)	13.3	17.5	11 - 13	13 - 17
Average weight at 6 months (kg)	25.3	30.2	19 - 24	25 - 28
Average weight at 9 months (kg)	40.6	49.2	34 - 38	45 - 50
Average weight at 12 months (kg)	58.2	81.4	45 - 52	75 - 80

Analyzing the data presented in table 1 it could be observed that during experiment, the piglets weight was higher in Mong Cai breed compared to breed Co. Thus, the weight at Co was, on average, 415 g on the first day of parturition and 58.2 kg at age 1 year. In the Mong Cai breed the weight was, on average, 454 g on the first day of parturition and 81.4 kg at the age of 1 year. The results are superior to those obtained in Vietnam [1, 3, 4, 5, 9], an explanation being

a high grain-based diet for Vietnamese pigs raised in Romania.

The average daily weight gain was observed during distinct periods, from one life day until 1 year. The results showing ascendant trend of this indicator, irrespective of the experimental batch or related to the rearing periods. Throughout the experimental period, average daily gain was different periods and experimental batches (table 3).

Table 3 Evolution of average daily gain (grams)

Period	Breed		Data from literature	
	Co	Mong Cai	Co	Mong Cai
<b>1 – 60 days</b>	56	94		
<b>60 – 120 days</b>	158	190		
<b>120 – 180 days</b>	200	212		
<b>180 – 270 days</b>	255	317		
<b>270 – 365 days</b>	196	358		
<b>1 – 365 days</b>	158	221	116 - 130	202 - 215

From the data presented in table 3 following aspects could be drawn:

- In the period of 1 - 60 days, the highest average daily gain was observed to the piglets from Mong Cai breed 94grams versus 56 grams to the piglets from Co breed;
- Throughout the experimental period, Mong Cai pigs registered higher growth gains compared to pigs of the Co breed;
- over the entire experimental period, 1 - 365 days, the pigs of the Co breed registered an increase of 158g and the pigs from the

Mong Cai breed registered 221 g growth increases, between races being recorded a difference of about 30%.

Analyzing the values presented in table 3 could be considered that they superior to the literature data for Vietnamese breeds [1, 3, 4, 5, 9].

In order to have a complete picture of the qualities of these breeds, quality carcass features were also determined, the results are shown in Table 4.

Table 4 The characteristics of the carcass

Parameter	Breed		Data from literature	
	Co	Mong Cai	Co	Mong Cai
Body weight (kg)	58.2	81.4	45 - 52	75 - 80
Hot carcass (kg)	40.74	58.2	32 - 38	52 - 57
Slaughter yield (%)	70.00	71.40	68 - 72	70 - 78
Back fat (cm)	3.0	3.5	2.5 – 2.8	2.87 – 3.10
Lean (%)	38.5	39.7	38 - 40	35 - 38

From the data presented in Table 4 we note that the carcass weight was 40.74 kg in the Co breed and 57.79 kg in the Mong Cai breed. The slaughter yield had close values, being 70% in the Co breed and 71.40% in the Mong Cai breed. The thickness of dorsal fat had higher values in Romania than Vietnam. Data obtained in connection with slaughter yield of this experiment revealed similar values with the results presented in the literature.

## CONCLUSIONS AND RECOMMENDATIONS

In Romania, there is a generic talk about the Vietnamese pig and not about a certain Vietnamese pig breed, although these breeds have different sizes and performances.

The reproduction and production performance are closer or higher than performance obtain in Vietnam, a possible explanation being the uncertainty of breeds purity taken in the study.

This breeds have performance for reproduction and breeding, inferior to local breeds and we do not recommend them to grow.

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