

## INTRODUCTION OF DIFFERENT MANGALICA BREEDS'S PROLIFICACY AND REARING PERFORMANCES

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### Abstract

Mangalica pig has a special significance in Hungary, because as a native breed it is substantial to preserve and keep in breeding. The professional membership and coordination of the breeding is performed by the National Association of Mangalica Breeders (NAMB) since 1994. The breed has three colour varieties – blonde, swallow-bellied and red – which are independent breeds verified by the results of gene-preservation researches. The paper compares prolificacy and rearing performances of the three mangalica breeds and also the determinants influencing the examined indicators among the years 2000 and 2011 on the basis of data from NAMB and National Food Chain Safety Office (NFCSO). It was analysed partly the number of days between two litters, the frequency of litter and the age at first litter of mangalica sows and the other hand the average results of one-day old piglets and the piglets reared to 21 days of age. Mangalica breeds have lower parameters in all indicators compared to a modern pig breed (e.g. Hungarian Large White) due to the speciality of the species (e.g. longer rearing period, tolerance to climatic and breeding conditions). Some economic factors (global economic crisis, drought damage) also affected the studied performances during the examined period.

**Key Words:** Mangalica pig, prolificacy, rearing performance

Mangalica pig has special significance in the Hungarian agriculture, because as an indigenous breed it is substantial to preserve it. The economic importance of this breed increasing continuously due to the growing demand in the domestic and especially in the international markets. It became world famous by the Spanish Serrano ham-factory due to its high quality of meat and the premium products made from this pig [1]. In Hungary there are 109 mangalica breeders with about 6,400 sows struggling to survive, promote the reputation of the species, and expand in foreign markets of their products. The professional membership and coordination of the breeding is managed by the National Association of Mangalica Breeders (NAMB) since 1994. The breed has three colour varieties – blonde, swallow-bellied and red – which are independent species verified by the results of gene-preservation researches. The preservation of these species and the gene-conservation is performed by the geological lines in accordance with the paternal origin, managed also by the NAMB, which is operated efficiently in a centralized boar farm. There are 27 lines with 268 boars, but it was 56 lines in the years of 1950. The significance of mangalica in Hungarian agriculture thanks not only to the specialities of the species, but it could be an important role in nutritional and human physiology as well.

### Materials and Methods

The paper compares prolificacy and rearing performances of the three mangalica breeds – blonde, red and swallow-bellied mangalica – and also the determinants influencing the examined indicators among the years 2000 and 2011 on the basis of data from National Association of Mangalica

Breeders (NAMB) and National Food Chain Safety Office (NFCSO). It was analysed partly the number of days between two litters, the frequency of litter and the age at first litter of mangalica sows and the other hand the average results of one-day old piglets and the piglets reared to 21 days of age.

The aim of the study is to find out the main similarities and differences between the mangalica breeds, and to verify the economic aspects of the changes during the examined period, from 2000 to 2011.

### Results and Discussion

Since 2000 the number of mangalica sows went through different changes mainly because of significant economical effects. Since the millenium the livestock has continuously increased until 2007 and reaching a level of 9,200 sows due to the Hungarian accession to the European Union in 2004 [2]. The reason for this was the target programme from the year of 2005 for the keeping of animals representing high genetic value, as the breed is indigenous [3]. This subvention was in place until 2009, but from 2008 continuous decline can be observed. The main reason for the decrease was the drastic growth of feed costs because of the drought damage in 2007 [4]. Another reason was the global economic crisis in 2008, which forced many farmers to stop their breeding and to liquidate their livestock. Since 2010, a further period of supports has been in place, which will be maintained until 31th December 2014. The aim of the subvention is to preserve the genetic stock of protected indigenous and endangered agricultural breeds represented in low numbers in breeding programmes [5]. This programme seems to stopped the decline, and even to the end of the supporting period will contract more than half of the farmers 50 percent growth in the sow number in expectation of more subventions.

Mangalica pig has three colour varieties – blonde, red and swallow-bellied – which are independent species. The most wide-spread variety is the blonde mangalica, because it is the original type; however, there are no economically significant differences between the three varieties [6].

Beside the continuous growth of the livestock it can be seen a change in composition of all of the mangalica breeds. The blonde mangalica stock has decreased during the examined period (from 2000 to 2011) and at the same time the rate of the other two breeds have increased. In the end of the 1990's the red and swallow-bellied varieties are on the edge of extinction. It can be observed continuous growth since 2000 and this stabilized the preservation of the red and swallow-bellied mangalica breeds. The subventions motivate the farmers to breed mangalica pigs and to preserve the genetic value. Since 2010, those breeders, who are keeping the blonde variety can apply for 20,000 HUF per sow/year (about 65 EUR), and who are breeding the other two varieties can get 40,000 HUF per sow/year (about 130 EUR) as subvention. This was the reason that the rate of blonde mangalica declined from 80 percent to 60 percent among the years 2000 and 2011, on the other hand the ratio of red and swallow-bellied mangalica breeds increased from 10-10 percent to 24 and 16 percent. (Figure 1).

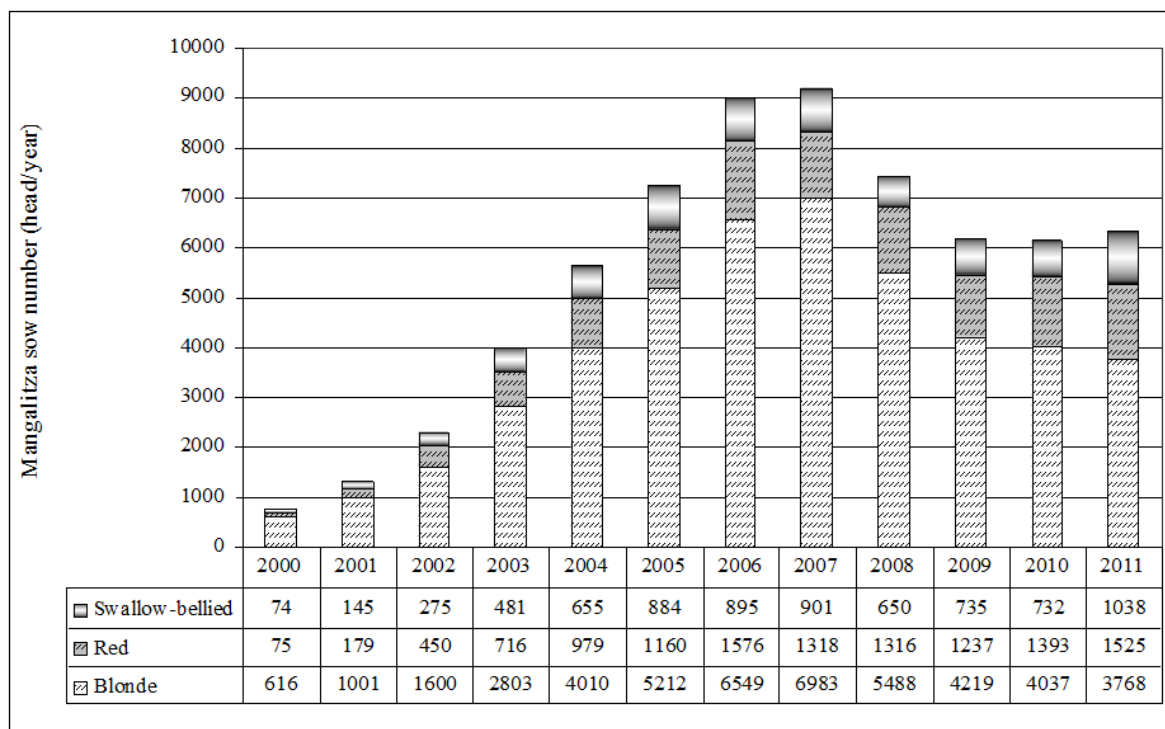
Examining the performances of the mangalica breeds it can be concluded that we could not observe significant changes in the number of days between two litters and even in the frequency of litter by 2006. After 2007 until 2009 the performances of each breeds declined, due to economical effects. The global financial crisis in Hungary in 2008 and

the drought damage in 2007 caused drastic problems in the segment. Lots of farms, and especially the small and large scale farms stopped their breeding.

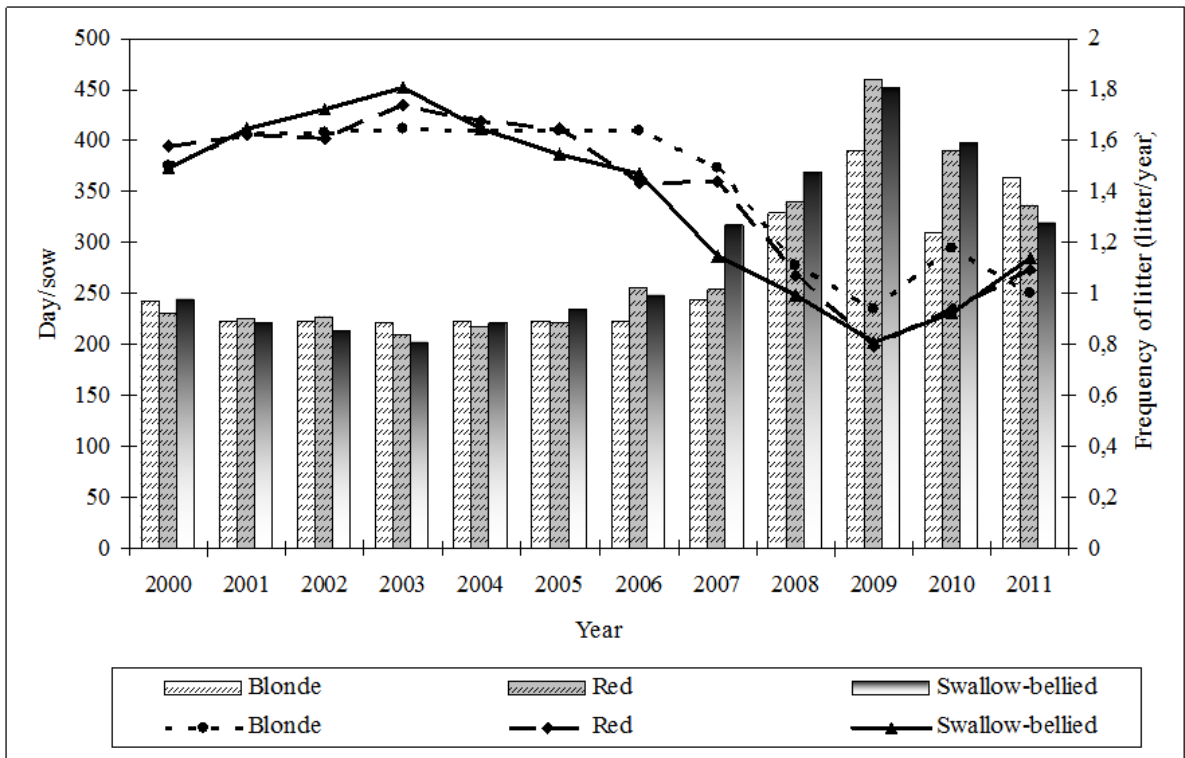
The species is resistance to diseases and does not care about the keeping technology, that is why it is suitable for keeping in extensive technology and also in organic breeding. In small (<30 sows) and the medium-sized farms (30-100 sows) the fattening is performed by pure-bred stock in extensive or semi-intensive technology. In contrast with it in the large-scale farms (>100 sows) the breeders are fattening in intensive conditions with crossed stock (Mangalica x Duroc). The weaknesses of the extensive technology are that the fattening period is longer and the lower growth rate increases the production costs, but even because of it mangalica meat has better quality, is tastier and differs from the modern pig in composition of fatty acids. Small and medium-sized breeders can't supply the foreign markets, the other hand large farms target the foreign markets with always standard quality and adequate quantity [7]. In intensive farms the prolificacy and rearing performances are better than in the other farm sizes because of the crossed mangalica. Due to the financial crisis these farms could not manage their production, that is why the performance indicators became lower.

According to the data it can be stated, that these indicators were the worst in those farms where red and swallow-bellied breeds were kept, except in 2011. After the new period of support (2010) motivated the breeders to keep these breeds because of the above mentioned higher amount of support (Figure 2).

**Figure 1. The distribution and the number of the three mangalica breeds, 2000-2011**



**Figure 2. The number of days between two litters and the frequency of litter, 2000-2011**

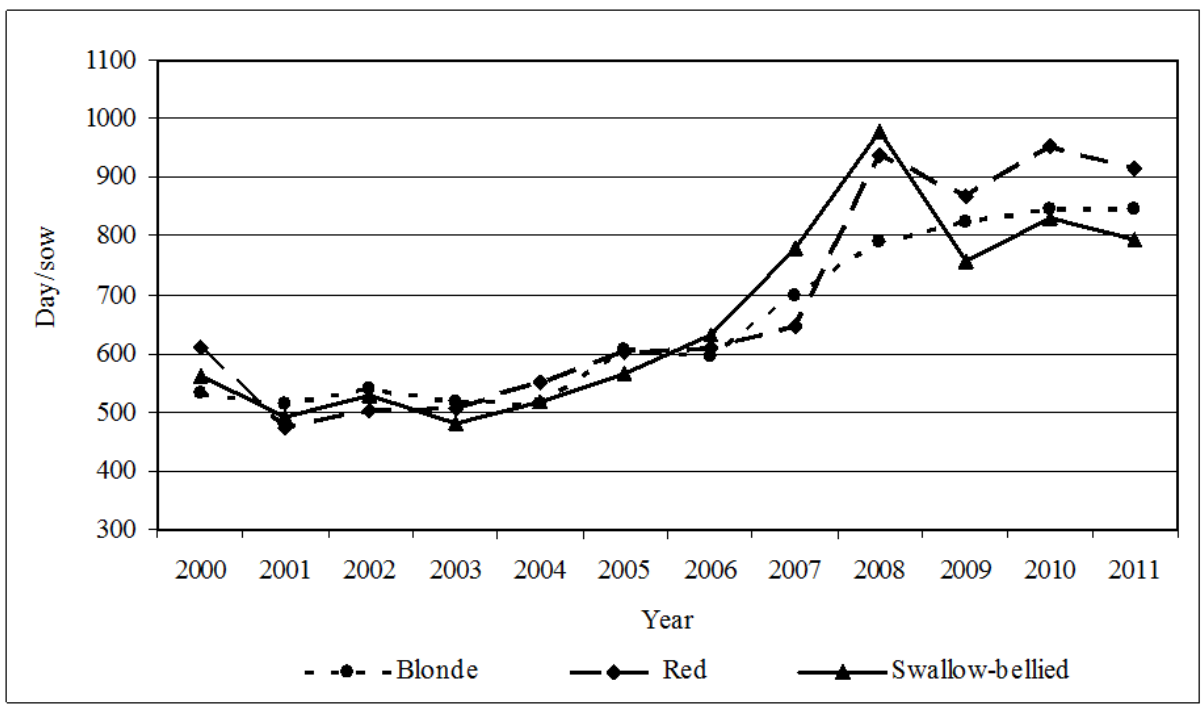


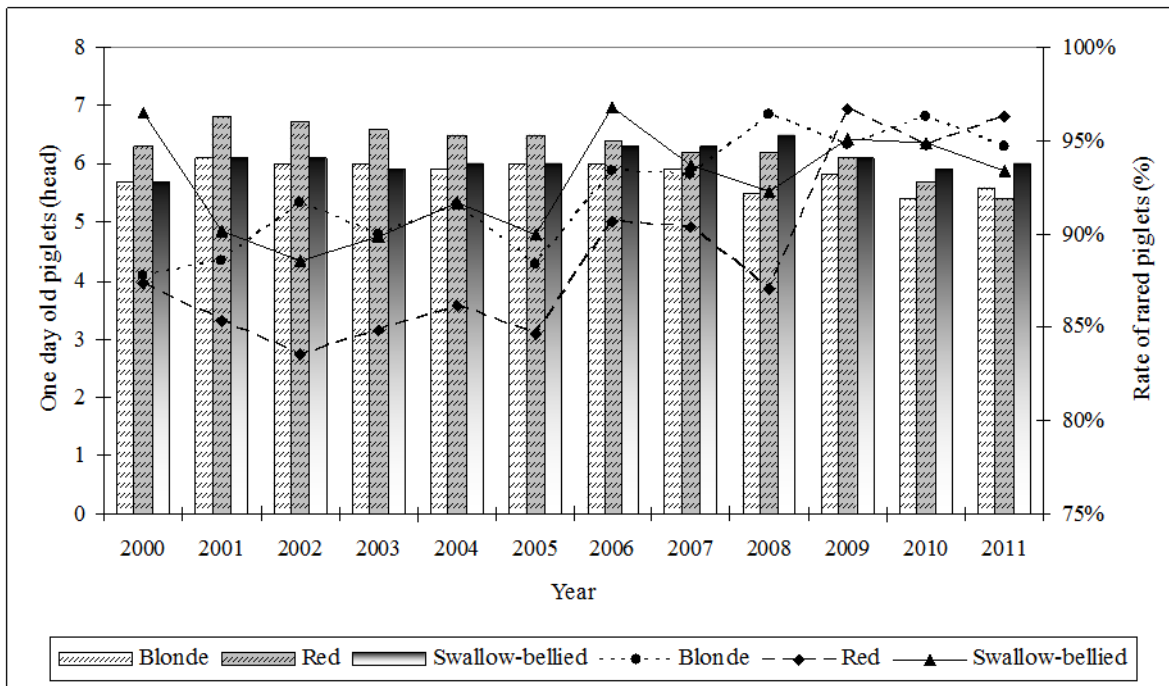
The age of all mangalica breeds at first litter was the same between 2000 and 2005, before the first period of support. After the subvention (2005) it can be seen a continuous increase in case of all of the three varieties. The swallow-bellied sows had the worst indicators between 2006 and 2008. The reason for this was that more farms were established or expanded with blonde mangalica lines in these years. Following the next subvention in 2010 the indicator improved in three breeds as well, but in case of this index the

red mangalica sows are shown the most poorer performances (Figure 3).

The ratio between the one-day old piglets and the reared piglets show a fluctuating value from 2000 to 2011 in case of all breeds. According to the results it can be said, that the rearing performance is the best in swallow-bellied and the worst is in red mangalica sows. We can also say that the value of this indicator became better from 2000 to 2011 in each variety (Figure 4).

**Figure 3. The age at first litter of mangalica sows, 2000-2011**



**Figure 4. Number of one day old piglets and the ratio of the reared piglets, 2000-2011**

## Conclusions

According to the results it can be concluded, that there are no genetically explainable differences between the three mangalica breeds. The drastic increase of feed prices caused by the drought damage in 2007 and the global financial crisis in 2008 were the main reasons of the decline in each prolificacy performance indicators. We could observe the destruction of performances due to the liquidation of large-scale farms and the farms with higher performances. The small farms are breeding pure-bred mangalica in traditional conditions, whereas the achievements of medium and large size breeders are better because of the crossed sows with Duroc boars. In case of rearing performance it can not find the above mentioned results.

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