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Research Article

Productive Values in Different Pig Breeds

Veterinary Medicine

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Abstract

The study realized the comparing productive indicators between Large White and Duroc breeds. The purpose of the study is get to know the genetic and reproductive capacity of these breeds, the size of litter and their weight, the growth rate of their offspring until the point of sale. All of these combined together will bring out to the fore the abilities of these breeds in the increase of pig meat quality and the effectiveness of rearing them. Evidence have been respectively analyzed the difference measured in days between the two parities was roughly 148 days and litters/sows/year 2.4, while in the Duroc breed it is roughly 163 days or 15 days more, and litter/sows/year 2.2. The litter size was 11.8 piglets per litter per Large White breed against the 9.7 that the Duroc breed yields or 2.1 piglets more. This difference or change is easily noticed during the lactation period until the 28th day. The two breeds have high genetic and productive abilities. The LW is set apart for a larger litter size and a better growth until the age of 28 days, when piglets are being fed with the milk of the sow.

1. Introduction

Improvement of sow productive and reproductive performance reduces the costs of pork production. Most selection efforts in pigs have been made with the purpose of improving pig efficiency. Selection for economically important traits in farm pigs is normally based on the phenotypic records of the individual and its relatives. Response to selection for a multi-trait objective depends not only on the economic-genetic variation, but also on the accuracy with which the breeding value of each trait is estimated, as well as correlations among traits. The estimate for traits of economic importance (production and reproduction) calls for high degree of accuracy in order to optimize the estimation of breeding value and that of breeding objectives and breeding schemes. Productive parameters included born alive per litter, litter size and the average daily gain. The amount of milk yielded from Large White sows from parity number 1 is 67.2 kg, while that from the Duroc sows is 55 kg. The litter size of Large White breed from the first parity to the second grows by 0.8 and from the second parity to the third by 1.4 piglets. The study reveals that the average weight of piglets at birth is 1460 gram for Large White and 1320 gram for Duroc respectively. This difference is seen during the lactation period until the 28-day. The average weight of piglets for the Large White reaches 7.3 kg, while for the Duroc is 6.9 kg. While from this age onward the Duroc displays advantages for this indicator when compared with the Large White. The study also indicates that the Large White is known for a litter of large size at birth and a better growth rate until the age of 28 days. The Duroc breed shows a high growth rate and this trait is passed down to next-generation. The two populations indicate variability for each distinct trait, which creates a possibility for a better selection.

2. Material and Method

For purposes of the study 10 sows of two populations Large White and Duroc respectively. As a basis of the study regarding the size of litter has been taken the second birth, and aside from this, the progress is reported on the 2^{nd} and 3^{rd} births.

While for purposes of studying the rate of growth of their offspring some 20 piglets have been taken based on the respective breeds from the age of 65 days up to 130 days and 220 days. In order to make certain

that work proceeded smoothly from here these organizations problems were recorded of piglets at the age of 28th day; mating animals taking care to avert the blood compatibility by utilizing rotation; registration of the copulations and births for each sow, registration of the reproduction indicators for each sow by means of cards; registration of weight and dynamics of growth for each piglets based on the age indicator: at birth, into the 28th day, into the 65th day, into the 130th day, into the 220th day and size of litter at birth. The daily gain in weight was calculated as: Z –V ⁄ AF – AB, where Z is live weight at the end of the period, V is live weight at the start of the period, Af is age at the end of the period and Ab is age at the start of the period. The indicators recorded included weight and litter size at birth, weight and litter size in the weaning, weight of litter into the 65th day, weight of litter size into the 220th day and daily weight for each period of time.

3. Results and discussion

During the first month of pregnancy the adequate amount of feed was used for the sows in order to supply the requirements for maintenance and to restore the sow's body condition and to build up reserves fat. In the first stage of pregnancy were used of 2.1-2.3 kg/feed/sow per day. During the last month a large proportion of the feeds are used for fetal development, growth of the udder.

In the last weeks when the sows transfer to the farrowing unit the feed change to lactation feed. For all sows the feed ration is given twice a day. The water is taken through a drinking instrument depending on need. In the case of piglets during lactation the only food used is colostrums used in the first days along with ordinary milk. During this period the enzymatic system of digestion is capable of utilizing only milk that is taken in the form of sows. The supplementary feed depends much on the requirements of piglets and the extent of meeting it through milk in sows. When the nutrients obtained through the use of milk to be inadequate then that's when supplementary feed comes along, the daily amount of which for each piglet comes from the difference that is not provided (requirement - the amount of milk yielded from sows).

The supplementary feed (pre-starter) is given in the middle of the second week, since during this period we witness an increase in the difference between the requirements of the piglets in energy and proteins and provision of such nutrients through milk. Precisely, his difference will have to be supply through feed. This allows the pigs to become accustomed to plant-related feed and to avoid any shock resulting from the huge amount of feed or when they are weaned. The pre-starter contains 13.5 MJ EM/kg and 21 % CP, at a time when the most developed digestion tract of the weaned piglets tolerates a lower concentration of nutrients in prestarter II (12.5 MJ EM/kg and 17 % CP. One of the purposes related to rearing sows is to get as many litters out of it as possible. In order to obtain meat at low cost the productive abilities of sows have to be rationally and effectively used. In the Large White the difference in days between the two parities is roughly 148 days, while in the Duroc breed is roughly 163 days or 15 days more; With regard to the economic efficiency of breeding the species, the number of births for each sow per year is very important

In the case of Large White the difference measured in days between the two parities was roughly 148 days and litters/sows/year 2.4, while in the Duroc breed it is roughly 163 days or 15 days more, and litter/sows/year 2.2.

From the data it turns out that the Large White has a higher productivity than the Duroc breed. In calculating the litter size, the second and third litters have been looked at for all of the sows.

Sow card	At birth			Into the 28th day			Mortality	
	Nr of piglets	Litter-live weight kg.	Piglets-weight kg.	Nr of piglets	Litter-live weight kg.	Piglets-live weight kg.	Nr of piglets	%
053	10	12.5	1.250	8	41.1	5.14	2	20
812	10	12.2	1.220	10	56.5	5.65	-	-
187	14	17.0	1.214	12	79.5	6.63	2	14.2
130	10	13.0	1.300	9	67.6	7.51	1	10
927	11	12.0	1.090	10	63.5	6.35	1	9
368	11	12.1	1.100	10	70.2	7.02	1	9
572	11	14.0	1.270	11	73.1	6.64	-	-
091	15	15.0	1.000	13	63.1	4.85	2	
360	15	17.2	1.146	12	85.0	7.08	3	20
614	11	13.0	1.181	9	78.5	8.72	2	18

Table nr 1. Productive data in the second litter, at birth and 28 days for the Large White.

Sow card	At birth			Into the 28th day			Mortality	
	Nr of piglets	Litter-live weight kg.	Piglets-live weight kg.	Nr of piglets	Litter-live weight kg.	Piglets-weight kg.	Nr of piglets	%
476	9	11.1	1.230	8	49.6	6.2	1	11.1
086	7	9.1	1.300	7	58.1	8.3	-	-
581	9	11.4	1.270	9	64.1	7.2	-	-
687	12	14.3	1.190	12	76.6	6.3	-	-
811	12	14.2	1.180	9	61.4	6.8	3	25
877	7	11.3	1.620	7	43.9	6.2	-	-
656	9	11.3	1.250	8	53.9	6.7	1	11.1
660	11	14.0	1.270	8	39.8	4.9	3	27.3
164	11	14.6	1.330	8	48.2	6.0	3	27.3
180	10	12.0	1.200	9	60.09	6.7	1	10

Table nr 2. Productive data in the second litter, at birth and 28 days for the Duroc.

The comparison of data reveals that the LW has a larger litter size than the Duroc breed.

The Large White provides on average 11.8 piglets per litter as opposed to Duroc with 9.7 piglets, or some 2.1 piglets more. This difference between the two continues even into the 28th day of lactation when weaning occurs. Yet another set of data of importance has to do with the amount of milk produced. The more milk the sow has, the quicker the piglets grow up and the more weight they gain when they are weaned. The amount of milk in the case of LW is on average 67.2 kg, while in the case of Duroc is 55 kg or 12 kg less. The growth rate in pigs

reared for meat is a significant indicator in evaluating pigs. This might be attributed to two essential moments: the improvement of the breed level and the growth effectiveness. The growth rate is expressed in the number of days that is taken in gaining an optimal body weight of 100 kg. This is stipulated by the average daily gain.

Breeds	Birth weight	28-day weight		65-day weight		130- day weight		220- day weight	
		kg	gr/day	kg	gr/day	kg	gr/day	kg	gr/day
LW	1.320	7.3	213	19.2	320	45.2	400	95	550
Duroc	1.466	6.9	194	23.8	345	58.9	540	110	570

Table nr 3. Relationship between live weight and age.

From the data it turns out that at birth the weight of piglets of Duroc breed is 1460 gr in relation to the weight of 1326 gr of LW, or some 134 gr more. This is an important indicator in the later development. At the age of 28 days these indicators vary significantly. The Sow (LW) because of the high quality milk it produces is capable of rearing piglets much better with an average weight growth of 7.3 kg against 6.9 kg of Duroc, or 0.4 kg more. At the age of 65-70 days, the Duroc breed shows advantages against the BW. Hence at the age of 65-70 days the body weight of Duroc is 23.8 against the 19.2 kg of BW. The same tendency is seen at the age of 130 days, where Duroc shows an advantage over BW of some 13 kg. As a result of this rapid growth, the Duroc breed gains a weight of 100 kg in 13 days period to BW breed, even though it has 40 kg less feed per sow. From the above it's easy to point to the better qualities that Duroc breed shows a high growth rate and this trait is passed down to next-generation. Thus this breed has much more advantages when used as the father breed in cross-breeds.

4. Conclusions

The two breeds have high genetic and productive abilities. The LW is set apart for a larger litter size and a better growth until the age of 28 days, when piglets are being fed with the milk of the sow. For the above reasons it's recommended that it acts as a mother breed in cross-breeds. The Duroc breeds exhibits features that are common to the standards of the breed itself. The Duroc breed has a high growth rate, a feature which is easily inherited in the offspring. For the above reasons it's recommended that it acts as a father breed in the cross-breeds. The two populations indicate variability for each distinct trait, which creates a possibility for a better selection.

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