

STUDY OF ABERDEEN ANGUS POPULATION TAKEN INTO THE OFFICIAL CONTROL OF MEAT PRODUCTION FROM S.C. COSMI VAS IMPEX S.R.L., FOR IMPROVEMENT

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Abstract

The development of the Aberdeen Angus breed in Romania began in 1999 following an exchange of experience between Romanian specialists, Dr. Popescu Alexandru, Dr. Pachițanu Vasile and Dr. Buzdugan Lucian, who participated in documentation visits to universities, breeding farms and fattening, frozen semen production centers and slaughterhouses in the United States at the invitation of specialists from the State Department of Agriculture.

The paper aims to analyze the main breeding indicators and the production performance of the Aberdeen Angus breed of cattle included in the Official Meat Production Control operated on the S.C. farm. Cosmi - Vas Impex S.R.L and comparing the results obtained with those of the specialized literature, in order to improve it.

The reproduction indicators studied were: the calving interval (Calving interval), the age at first calving and the interval in days from parturition until the first artificial sowing or fecundation (Service period) for 2017 and 2018.

The production performances studied have been: birth weight, average daily gain corrected at 200 days and 365 days for 2017 and 2018.

The obtained results showed values that are included in the specialized literature, therefore, the birth weight for 2017 was 32.25 ± 0.30 kg, the average daily gain being 781.62 ± 31.58 g / day at the age of 200 days and 812.62 ± 35.28 g / day to that of 300 days.

Key words: Aberdeen Angus, birth weight, calving interval.

INTRODUCTION

Raising beef is a viable alternative to the dairy cow, due to the shortage of beef in the European Union, the increase in the price of meat, the large areas of unused grassland at national level and the low maintenance costs.

In the context of a meat shortage in the European Union, the increase of production can not only be based on the increase of the exploited herds,

but it must be based on the modification of the genetic potential of the bovine populations and the improvement of the production characters, together with the improvement of the operating conditions, so that to obtain superior productions, both quantitatively and qualitatively, that meet the needs of consumers (Bishop MD et al., 1994, Schlee P., et al., 1994b).

The development of the Aberdeen Angus breed in Romania began in 1999 following an exchange of experience between Romanian specialists, Dr. Popescu Alexandru, Dr. Pachițanu Vasile and Dr. Buzdugan Lucian, who participated in documentation visits to universities, breeding farms and fattening, frozen semen production centers and slaughterhouses in the United States at the invitation of specialists from the State Department of Agriculture (Veleac C., 1999).

The first massive importation from Germany of Aberdeen Angus bulls took place in 2008, in Sibiu county, where Samuel Widmer and Stefan Jung laid the foundations of the Karpaten Meat farm by modernizing the premises of a zootechnical complex from the post-December period.

The ever-increasing demands for beef coupled with lower milk prices and the introduction of milk quota have prompted farmers in Romania to reorient to the Aberdeen Angus breed due to the remarkable adaptability to the pedoclimatic conditions of our country, the low maintenance costs, very good recovery. and forage, the slaughtering efficiency of over 65%, the achievement of spores of between 1000 and 1450 g / day and the obtaining of meat having special organoleptic qualities (Vasconcellos, L. P. de M. K . et. al., 2003)

The import of biological material and the establishment of pure-bred farms as well as the acquisition of artisans through the use of artificial seeding and semen from internationally valuable bulls have led to the increase of the national herds and the need to organize the control of the performances that represent the basis. the program to improve the exploited herds.

The Aberdeen Angus breed is native to the counties of Aberdeen and Angus in northeast Scotland and was formed by breeding local bulls and infusing it with other breeds: Galloway, Ayrshire, Guernsey and Shorthorn. The founders and breeders of the breed are considered H. Watson and William Mc. Combines that at the end of the XVIII century by the contribution of numerous breeders consolidate and improve the breed (Velea C., 2012).

In this paper, we proposed to analyze the main breeding indicators and the production performance of the Aberdeen Angus breed cattle included in the Official Meat Production Control operated on the S.C. Cosmi - Vas Impex S.R.L farm and comparing the results obtained with those of the specialized literature, in order to improve it.

MATERIAL AND METHOD

The biological material analyzed was represented by the Aberdeen Angus, Fleckvieh, German Bălțată, Bălțată with Romanian black, Brună and Pinzgau breeds and mixed with Aberdeen Angus (tab. 1).

Comparing the data from 2017 and 2018, it is observed that the number of males category 0-6 months remains constant, 6-12 months and 12-18 months register a decrease of 1, respectively 2 heads, 18-24 months and bulls register an increase of 1, respectively 5 heads. In total, the number of people increased in 2018 by 9 heads.

Table 1

The breed structure of the herd, 2017-2018

Year	Breed							Half breed	Total
	AA	FV	BG	BR	BNR	BS	PZ		
2017	210	13		2		4		49	278
2018	247	10	1	2	2	4	2	54	322

The female herd category 0-6 months and 12-18 months registered a decrease of 2 heads in 2018, and the 6-12 months and the cows category registered an increase of 4, 33 heads respectively. Overall, the female population registered an increase of 35 heads in 2018 (tab. 2).

Table 2

Age structure of the head, 2017 - 2018

Year	Sex	Vârsta						Total
		0-6 months	6-12 months	12-18 months	18-24 months	Cows	Bulls	
2017	♀	12	52	13	25		2	104
	♂	11	35	10	26	92		174
2018	♀	12	51	11	32		7	113
	♂	9	36	9	30	125		209

The main breeding indicators and the production performance of the cattle studied were: calving interval (calving interval), age at first calving and days between parturition and until the first artificial sowing or fecundation (Service period), weight at birth, the average daily gain corrected to 200 days and 365 days for 2017 and 2018.

RESULTS AND DISCUSSION

Regarding the average weight at birth in 2017 for the whole lot studied, it was 32.25 ± 0.30 kg, the absolute values ranging from 27 to 39 kg.

From this point of view, the population is very homogeneous, the coefficient of variation V% having the value of 7.56%.

Comparing the results obtained for the group of females and males, one can observe their homogeneity, the differences between the average weight at birth being insignificant.

Depending on the sex of the product it is observed that the smallest and the highest weight are registered in the lot of females, 27 respectively 39 kg.

The data obtained regarding the birth weight are comparable to the data in the specialized literature which indicates an average birth weight of 30-35 kg. (tab. 3).

Table 3

Estimators for birth weight (Kg), 2017 - 2018

Anul	Sex	n	$\bar{X} \pm s\bar{x}$	V%	Limita (kg)	
					Min	Max
2017	♀	37	$32,43 \pm 0,36$	6,84	29	37
	♂	28	$32,00 \pm 0,51$	8,51	27	39
	Total	65	$32,25 \pm 0,30$	7,56	27	39
2018	♀	42	$30,17 \pm 0,36$	5,56	26	40
	♂	38	$30,05 \pm 0,38$	6,18	24	35
	Total	80	$30,11 \pm 0,26$	2,91	24	40

In 2018, the average birth weight for the entire studied group was 30.11 ± 0.26 kg, the absolute values ranging from 24 to 40 kg.

The coefficient of variation V% has a value of 2.91% and from this point of view the population is very homogeneous.

The data obtained regarding the birth weight are comparable to the data in the specialized literature which indicates an average birth weight of 30-35 kg (tab. 3).

Comparing the results for 2017 and 2018, it can be seen that in 2017, the average birth weight is higher compared to 2018, but the lot is more homogeneous in 2018, the coefficient of variation V% being 2.91%. In

2017, the minimum weight registered was 3 kg higher than in 2018 and the maximum weight with 1 kg less (tab. 3).

Regarding the average daily increase, it is observed that in 2017 at the age of 200 days for the whole studied group the average was 781.62 ± 31.58 g / day, the absolute values ranging between 464 and 1185 g / day. From this point of view, the population is very heterogeneous, the coefficient of variation V% having the value of 22.86%.

Comparing the results obtained for the group of females and males, we can observe their heterogeneity, the coefficient of variation being 18.02% for females and 21.31% for males, the average daily increase of the group of females 867.19 ± 36.87 g / day being superior to the group of males that recorded an average of 670.30 ± 38.17 g / day.

These results are in contradiction with the values in the literature, knowing that males have higher daily average increases than females.

These results can be explained by the fact that the weighed batches were different in terms of age and date when the weaning occurred.

Depending on the sex of the product it can be observed that the smallest daily average increase is recorded in the male group 464 g / day and the highest increase in the female group 1185 g / day.

The data obtained regarding the average daily increase are not comparable with the data in the specialized literature which indicate a daily average increase between 1000-1450 g / day (tab. 4).

Table 4

Estimators for the average daily gain corrected at the reference age 200 days (g / day),
2017-2018

Year	Sex	n	$\bar{X} \pm s\bar{x}$	V%	Limit (g/zi)	
					Min	Max
2017	♀	14	670,30±38,17	21,31	464	914
	♂	18	868,19±36,87	18,02	615	1185
	Total	32	781,62±31,58	22,86	464	1185
2018	♀	18	837,37±73,28	37,13	371	1465
	♂	9	763,12±31,45	31,45	449	1248
	Total	27	812,62±35,28	35,28	371	1465

In 2018, the average daily increase corrected for the entire studied group was 812.62 ± 0.26 g / day, the absolute values ranging from 371 to 1465g / day. The coefficient of variation V% has a value of 35.28% and

from these points of view the population is very heterogeneous. And in 2018, the average daily increase is lower than the one mentioned in the literature.

Comparing the results for 2017 and 2018, we can see an increase in the average daily increase in 2018 (tab. 4.).

Also in 2018 the average daily increase at 365 days for the whole studied group was 902.51 ± 17.62 g / day, the absolute values ranging from 779 to 991 g / day.

The value of the coefficient of variation 7.31% indicates that the studied lot is very homogeneous. Depending on the sex of the product it is observed that the smallest and the highest daily average increase is recorded in the male group 886 g / day, respectively 991 g / day.

The average daily gain recorded by the weighed lot is lower than the average daily gain mentioned in the literature (tab. 5).

Table 5

Estimators for the average daily gain at the reference age 365 days 2018

Year	Sex	n	$\bar{X} \pm s\bar{X}$	V%	Limit (g/day)	
					Min	Max
2018	♀	7	945,47±13,20	3,69	886	991
	♂	7	859,55±23,60	7,26	779	953
	Total	14	902,51±17,62	7,31	779	991

The average age at first childbirth in 2017 is 24.57 ± 0.23 months, the absolute values ranging from 23 to 26 months, the studied population being very homogeneous $V\% = 3.47$ (tab. 6).

Table 6

Estimatorii pentru vârsta la prima fătare 2017 și 2018

Year	n	$\bar{X} \pm s\bar{X}$	V%	Limit (mounth)	
				Min	Max
2017	14	24,57±0,23	3,47	23	26
2018	34	23,47±0,30	7,36	21	29

The average age at first birth in 2018 is 23.47 ± 0.30 months, with absolute values ranging from 21 to 29 months. And in this case, the herd is very homogeneous $V\% = 7.36$.

The results obtained are comparable with those of the specialized literature, the age at first calving being considered between 23-26 months and the optimal interval for introduction to reproduction 14-17 months or the minimum weight of 350 kg.

Calving interval (CI) represents the interval between two consecutive calves. It is observed that in 2017, the interval between two successive calves was 365 ± 6 days, the absolute values ranging between 306 and 498 days, the coefficient of variation $V\% = 11.42$ indicates that the studied population is heterogeneous.

In 2018, the interval between two successive calves was 398 ± 5 days, the absolute values ranging from 308 to 466 days. From this point of view, the population was very homogeneous, the coefficient of variation being $V\% = 9.21$. At the same time, there is an increase in the interval between two successive calves in 2018.

Comparing the data from the specialized literature that indicates an optimal range of 360 - 380 days, it turns out that in 2017 the value falls within the optimal limit, while in the year 2018 increase of this interval can be an indicator of reproductive function disorders, low feeding level or maintenance conditions (tab. 7).

Table 7

Estimatorii pentru caracterul Calving interval 2017 și 2018

Year	n	$\bar{X} \pm s\bar{x}$	V%	Limit (days)	
				Min	Max
2017	53	365 ± 6	11,42	306	498
2018	49	398 ± 5	9.21	308	466

The service period (SP) represents for multiparous, the interval in days from parturition and until the first mount or fertile sowing and for primiparous, the time interval from birth to first calving.

This indicator is important for the management of the farm and the breeding activity indicating how the cows were kept during the advanced gestation period and in the post-breeding period and the breeding youth.

The optimal period of service in cows is 45-90 days and is an important period, in which the animal recovers after parturition and the uterine involution takes place.

Following the statistical processing of the data, for the population studied in 2017, a Service period of 67 ± 6 days was obtained, and a value of the coefficient of variation of 58.12, which indicates a very heterogeneous population. In 2018, the Service period for the studied

population was 109 ± 5 days, with absolute values ranging from 21 to 168 days. The population is also very heterogeneous (tab. 8).

Table 8

Estimators for Service period 2017 și 2018

Year	n	$\bar{X} \pm s\bar{x}$	V%	Limita (zile)	
				Min	Max
2017	46	67±6	58,12	21	210
2018	44	109±5	32.04	21	168

Considering that the optimal value of the service period mentioned in the specialized literature is between 45-90 days, the data obtained in 2018 indicate possible disorders of the reproductive function or are due to the body's exhaustion after calving.

CONCLUSIONS

Following the study of the Aberdeen Angus cattle herd from the S.C. farm Cosmi Vas Impex S.R.L., the following conclusions can be drawn:

➤ for the birth weight character, the average obtained for 2017 and 2018, of 32.25 ± 0.30 kg, respectively 30.11 ± 0.26 kg, falls within the limits mentioned in the specialized literature, 30-35 kg;

➤ for the character of daily average increase, the average obtained both at the reference age 200 days for the year 2017 and 2018, 781.62 ± 31.58 g / day and 812.62 ± 35.28 g / day, respectively at 300 days for the year 2018, 902.51 ± 17.62 g / day, are below the average mentioned in the literature, 1000-1450 g / day;

➤ for the character of age at first calving, the average obtained in 2017 and 2018, 24.57 ± 0.23 months and 23.47 ± 0.30 months, fall within the limits mentioned in the specialized literature, 23-26 months;

➤ for the Calving interval character, the average obtained in 2017, 365 ± 6 days, falls within the limits mentioned in the specialized literature, 360-380 days. In 2018, the average increases to 398 ± 5 days, indicating the appearance of dysfunctions in the way of animal maintenance;

➤ for the character of Service period, the average obtained in 2017, of 67 ± 6 days, falls within the limits mentioned in the specialized literature, 45-90 days. In 2018, the average increases to 109 ± 5 days, indicating the appearance of dysfunctions in the way of animal maintenance.

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