Tropical and Subtropical Agroecosystems

NOTA CORTA [SHORT NOTE]

AN EXPERIMENTAL APPROACH TO THE STANDARDIZED WEIGHT AND DAILY GAIN OF THE BLANCA ANDALUZA KIDS

[ALTERNATIVA EXPERIMENTAL PARA EL PESO ESTANDARIZADO Y LA GANANCIA DIARIA EN CABRITOS BLANCA ANDALUZA]

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SUMMARY

Forty animals of both sexes were weighted every fifteen days from birth to slaughtering. These animals were maintained half in intensive and half in extensive conditions, with the purpose of the knowledge of their productive behavior in early ages. These are the first data existent over the productive ability of this goat breed, specialized in meat production, something very important for its conservation and put in value. Using the real weight recorded in these animals we have firstly calculated the daily gain between periods, and using these data as regression coefficient we have calculated the standardized weight of the animals at birth, 7, 14, 21, 28, 35 42, 49, 56, 63, 70, 77, 91, 105, 119, 123, 137, 141, 155, 173, 191 and 220 days old. We present the descriptive statistics of central tendency and dispersive, where it is easily appreciable a homogeneity of records between sexes, and management systems, during all the development. Only we could stood out a bigger lost of intensive kids in front of the natural system. With respect to other international references we have to mention the meat specialization of the breed, observed in the level of the appreciated weight. Also we have to stood out the high level of diversity inside the established groups (sexes, systems) bigger than the diversity obtained between groups. Anyway the growth is slow, delaying the reaching of the traditional slaughtering weight until 137 days old.

key word: meat goat production

INTRODUCTION

Blanca Serrana Goat breed was in the past an important member of the complex Mediterranean Padock (Dehesa) together with other famous genetic resources, such as The Iberian Pig and the Spanish Merino Sheep.

These complex has given profitability to a traditional and sustainable management system by mean of the commercialization of high quality defined product under figures of protection such as the Protected Geographical Indication and Certification of Origin.

The successes obtained with pigs and sheep was not got with the Blanca Serrana Goat probably because the indefinition of their products, which have had to compete with meat from kids belonging to dairy breeds, put their kids in the market as a subproduct.

In the present work we have determined the carcass characteristics of the Blanca Serrana Goat breed with a view to obtain a scientific support to define this product in the market ensuring the survival of the breed. At the same time we have tested the behavior of these parameter under extensive (possible organic production in the future) and intensive (industrial production).

MATERIAL AND METHODS

The experimental design consisted in the location of two sets of 20 kids (10 males and 10 females) belonging to the Blanca Serrana Andaluza breed distributed in to a commercial extensive farm, and an intensive official farm each.

These 40 kids were maintained in such conditions until they reach the final weight of 18 Kg. (+- 5 Kg). When animals reach this weight they were slaughtered taken into account the animals rights and the laws of animal welfare.

The animals were weighted weekly until slaughtering. With these real weight we have calculated individual daily gains, using it as regression coefficients to normalize the weight at the following standard ages: at birth, 7, 14, 21, 28, 35, 42, 49, 56, 63, 70, 77, 91, 105, 119, 123, 137, 141, 155, 173, 191 and 220 days old:

Firstly we have obtained the descriptive statistics (Mean, Standard deviation and Standard error of the Mean). Secondly we have developed an ANOVA

including as fixed effects Sex and Management Systems, together with their interaction.

RESULTS AND DISCUSION

This is the first approach to productive characteristics of the Blanca Andaluza goat breed. This is really an unknown population from the zootechnical point of view. Weights at different ages and daily gains between commercial periods of the animals life are usually considered selection criteria in meat specialized populations, so we have understood that the capacity of this breed in terms of growing is something very interesting for the farmers in order to evaluate the profit possibilities of these animal productions.

Table 1 is showing our results about means and dispersive characteristics of data, observing the whole sample universe. We have to point out as main findings that the kids shown a strong development at birth, what propose this breed as meat specialized. Anyway the daily gains obtained have shown these animals as low praecox, because their growing is too slow.

Table 1: Descriptive statistics of weights and daily gains of the whole population of Blana Serrana goat breed. PN is weight at birth and P 7 to 220 is weights at 7 to 220 days old. GM are daily gains between different ages.

	N	Mean	Std.Dev.	St.Error
P_N_EST	29	4,11213	,801067	,148754
P7_EST	29	4,84888	,663044	,123124
P14_EST	31	5,63530	,691677	,124229
P21_EST	31	6,60310	,796352	,143029
GM_P2_P3	29	,10400	,063845	,011856
P28_EST	29	8,17223	2,516450	,467293
P35_EST	29	8,90026	2,312386	,429399
P42_EST	29	9,62828	2,182018	,405191
P49_EST	29	10,35631	2,138866	,397178
P56_EST	29	11,08434	2,188096	,406319
GM_P3_P4	14	0,10370	0,036754	0,009823
P63_EST	14	11,07509	2,070877	,553465
P77_EST	14	12,52689	2,180470	,582755
P91_EST	14	13,97868	2,397892	,640864
P105_EST	14	15,43048	2,697193	,720855
P119_EST	14	16,88228	3,054396	,816322
P123_EST	14	17,29708	3,164425	,845728
P137_EST	14	18,74888	3,570558	,954272
P141_EST	14	19,16368	3,691566	,986612
P155_EST	14	20,61548	4,128410	1,103364
P173_EST	14	22,48207	4,713171	1,259648
P191_EST	14	24,34867	5,315970	1,420753
P220_EST	14	27,35597	6,311953	1,686940

This is also supported by the slaughtering age, this is reached at 137 days old when they have reached what is culturally considered as slaughtering weight (18 kg). Marichal et alt.. (2003**)** studied animals at different slaughter weights (6, 10 and 25 kg) and found these daily gains: 99.77, 151.41 y 125.81. Daily gains in animals with 6 and 10 kg are similar to the results obtained by Argüello (2000) with Canary islands goats.

Observing our results we note a low competitiveness of these animals in a free market, because of two reasons; the first is the low prizes of those kids produced related to dairy goats, the second is the change of the market demands induced by these dairy kids which are slaughtered very early. So Blanca Serrana kids could only maintain certain possibilities of competitiveness under some geographical protection criteria.

We have not found statistical differences between the management systems. The zootechnical behavior of these animals resulted the same, from the statistical point of view in intensive as well as in extensive systems. But Anous y Mourad (2001) found that animals from intensive system ($p<0.01$) were heavier at slaughter than (14.9 vs 9.7 kg) the animals from semi-intensive. Only was remarkable the bigger number of animal death in the fattening period in

intensive conditions. Even the small simple size when animals are grouped, we can conclude that this breed doesn't present an increasing of growing when they are fed with comercial concentrates, according to they are feeding under free lactation, and pastures. Almeida et alt. (2003) remarked that Boer kid's were heavier if they were fed with suplement than if they weren't supplemented. Choi et alt. (2006) saw that 'Black Korean' goat gained more weight if they were fed with oak browses instead of rice. Descriptive statistics for each of the tested management systems are represented in Table 2.

Table 2: Descriptive statistics of weights and daily gains of sampled animals according to their management system. PN is weight at birth and P 7 to 220 is weights at 7 to 220 days old. GM are daily gains between different ages.

	INTENSIVE				EXTENSIVE			
	N	Mean	St.Dev.	St.Error	N	Mean	St.Dev.	St.Error
P_N_EST	12	3,90785	,774198	,223492	17	4,25633	,810880	,196667
P7_EST	12	4,62833	,538589	,155477	17	5,00457	,712519	,172811
P14_EST	12	5,46889	,383397	,110677	19	5,74041	,823048	,188820
P21_EST	12	6,30945	,488290	,140957	19	6,78857	,904133	,207422
GM_P2_P3	12	,09479	,048990	,014142	17	,11051	,073313	,017781
P28_EST	12	7,65792	1,446798	,417655	17	8,53527	3,050312	,739809
P35_EST	12	8,32146	1,409656	,406933	17	9,30882	2,750040	,666983
P42_EST	12	8,98500	1,454728	,419944	17	10,08236	2,519477	,611063
P49_EST	12	9,64854	1,574973	,454655	17	10,85591	2,378979	,576987
P56_EST	12	10,31208	1,755005	,506626	17	11,62946	2,344792	,568696
GM_P3_P4	9	,10386	,025566	,008522	5	,10342	,055522	,024830
P63_EST	9	11,02418	1,893242	,631081	5	11,16673	2,598589	1,162124
P77_EST	9	12,47818	2,070020	,690007	5	12,61456	2,620505	1,171926
P91_EST	9	13,93218	2,289502	,763167	5	14,06240	2,861794	1,279833
P105_EST	9	15,38617	2,540647	,846882	5	15,51024	3,274313	1,464317
P119_EST	9	16,84017	2,814991	,938330	5	16,95808	3,802738	1,700636
P123_EST	9	17,25560	2,896728	,965576	5	17,37174	3,968785	1,774895
P137_EST	9	18,70960	3,192139	1,064046	5	18,81958	4,587445	2,051568

Also we have not found statistical sexual dimorphism. ANOVA does not detect statistical differences between sexes for the studied variables. It was a surprise for us because considering this breed a rustic, environmental and little selected, we could expect an evident dimorphism, but in spite of this we found a clear homogeneity between sexes during all the fattening period. It only could be explained by the low precocity of these animals which induce them to a later differentiation among sexes, just after puberty. Peña et alt. (1994), didn't find statiscal sexual dimorphism in 'Florida Sevillana's goat, but the daily gain was bigger in males (212 g/d) than in females (195 g/d). Mahgoub et alt. (2005) found the same sexual dimorphism in 'Jebel Akdhar' goats. Another remarkable question, even not statistically demonstrable, is the biggest data registered for females from birth to 28 days old, from this point males shown the biggest registers. We can only explain this fact for a sampling effect which must be confirmed in future deeper studies. Table 3 is showing the descriptive statistics calculated for both sexes.

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Table 3: Descriptive statistics of weights and daily gains of sampled animals according to their sex. PN is weight at birth and P 7 to 220 is weights at 7 to 220 days old. GM are daily gains between different ages.

	MALE				FEMALE			
	N	Mean	St.Dev	St. Error	N	Mean	Std.Dev.	St. Error
P_N_EST	15	3,92	0,911	0,235	14	4,30	0,637	0,170
P7_EST	15	4,64	0,662	0,170	14	5,06	0,615	0,164
P14_EST	15	5,48	0,574	0,148	16	5,77	0,779	0,194
P21_EST	15	6,32	0,773	0,199	16	6,85	0,751	0,187
GM_P2_P3	14	0,09	0,072	0,019	15	0,11	0,054	0,014
P28_EST	14	8,28	2,909	0,777	15	8,06	2,186	0,564
P35_EST	14	8,94	2,673	0,714	15	8,86	2,013	0,519
P42_EST	14	9,59	2,519	0,673	15	9,65	1,904	0,491
P49_EST	14	10,24	2,462	0,658	15	10,45	1,869	0,482
P56_EST	14	10,90	2,510	0,670	15	11,25	1,912	0,493
GM_P3_P4	8	0,10	0,043	0,015	6	0,10	0,030	0,012
P63_EST	8	11,46	2,255	0,797	6	10,55	1,860	0,759
P77_EST	8	12,90	2,340	0,827	6	12,02	2,039	0,832
P91_EST	8	14,34	2,568	0,908	6	13,49	2,284	0,932
P105_EST	8	15,78	2,905	1,027	6	14,96	2,576	1,051
P119_EST	8	17,21	3,318	1,173	6	16,43	2,900	1,184
P123_EST	8	17,63	3,446	1,218	6	16,85	2,997	1,223
P137_EST	8	19,06	3,922	1,386	6	18,32	3,350	1,367

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