

Gain of Weight and Age to the Weaning of Livestock *Bos taurus* × *Bos indicus* Low Conditions of Humid Tropic

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Abstract: With the objective of valuing the age and the weight to the weaning of calves of *Bos taurus* crossed with *Bos indicus*, the registrations of 302 calves were used of *Bos taurus* crossed with *Bos indicus* in a proportion of $\frac{1}{4}$ to $\frac{3}{4}$ approximately. The evaluated European races were mainly: Belgian blue, Charolais, Limousin and Beef master, crossed with having won zebu like: Brahaman, Nellore, Indobrasil and Simbrah among others. The studied variables went the weight to the birth (PN) to the 15 and 30 days of age, the weight to the weaning (PD) where use of a precocious weaning was made with an average of 120 days of age and lastly was considered the Daily Gain of Weight (GDP) to the 3, 4 and 5 months of age. The results were analyzed by means of descriptive statistic of central tendency where for the weights to the birth presented an average of 37.3 kg to the 15 days and 50.8 kg to the 30 days of age, with a range of weight of 20 kg to 77 k.o. for both cases. The weight to the weaning presented an average of 175 kg to the 4 months of age, with ranges of 132-256 kg on the average, obtaining the best weights the race Belgian blue, followed by the race zebu and charolais. For the daily gain of weight between the 90 and 150 days of age an average of 1.15 kg was obtained and a range of 0.820-1.85 kg.

Key words: Gain of weight, weight to the weaning, livestock *Bos indicus*, livestock *Bos taurus*

INTRODUCTION

The increment in the productivity of the livestock for meat in the humid tropics through it crosses it of *Bos taurus* and *Bos indicus* it has been established in several works. This crossbreeding among races can contribute to improve the characteristics of economic importance vastly in the bovine livestock for meat. These characteristics include gestation rates, births, weaning and survive of the breeding. What has taken has to implement bulls of European races in the Mexican tropic. The tropical livestock *Bos indicus* in particular the Brahaman, is important for the industry of the meat from some years, mainly in regions where the caloric stress takes place.

Since for their wildness and potential of it crosses with European livestock they elevate the heterosis levels in the cattle ranches.

In the Mexican cattle rising, the climate is one of the most important elements and a factor of great relevance for the productive efficiency of the animal. For it, it is of transcendence to mention that the Mexican climate contains diverse elements that have direct effects in the productive and reproductive basic functions of the bovine livestock (Phanor, 2000).

This situation represents some advantages and big disadvantages, since the tropical climate is characterized by the permanent climatic stress, poor pastures, shortage or excess of water and precarious handling of the cattle

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raising. On the other hand, appropriate conditions are constituted especially for the illnesses and parasitism in the European races.

These animals' servants under the action of tropical conditions, adjust their mechanisms of adaptation for the action of the natural or artificial selection, presenting tipihycations diversity or ecotypes that go transforming their characteristics gradually for the tropical climatic adaptation (Phanor, 2000).

The increment in the productivity of the livestock for meat in the humid tropics through it crosses it of *Bos taurus* (Bt) and *Bos indicus* (Bi) they have been established in several works. These crossbreeding among races can contribute to improve the characteristics of economic importance vastly in the bovine livestock for meat. These characteristics include gestation rates, births, weaning and survives of the breeding, what has taken to implement bulls of races *Bos taurus* in the Mexican tropic.

The objective of this research, was to value the age and the weight to the weaning of calves of *Bos taurus* × *Bos indicus*.

MATERIALS AND METHODS

The present research was carried out in a Unit of Bovine production of the state of Campeche, Mexico whose north latitude is of 20° 51', to the south of 17° 49', with a longitude to the east of 89° 09' and to the west of 92° 28', being presented a pluvial precipitation of 1.200 mm. The summary of the field information was taken I put an end to the help of those in charge and jeans of the ranch. The analysis of the results was carried out by means of descriptive statistic of central tendency.

RESULTS

Of the 105 samplings, the weight of 60 calves was averaged that had among 1-15 days of born, giving 37.3 kg as a result with a range of 20-66 kg (Table 1).

In the Table 2, the results of the averages are presented from the pesos to the birth from 1 to 30 days of age.

The dear results of the weights to the birth were obtained in the first 30 days postpartum. With a range of 28-77 kg and an average of 48.6 kg for males and 51.3 kg for females.

The biggest weight PN obtained it the race Belgian blue with 42 Kg on the first 48 h. of life. Obtaining this way, the race with bigger weights and quantity in the sample. Represented by 36%, followed by the Beef master 18%, Swiss 13%, Charolais 13%, Zebu 10% and Limousin 10%.

Table 1: Averages of weight to the birth 1-15 days age

Age	1-15 days	Range Kg
Sample number	60	
Average 48 h	33.5 kg	20-42
Average 8 days	35.7 kg	20-45
Average 15 days	42.9 kg	20-66
General average	37.3 kg	
Average female	39 kg	
Male	43.1kg	

Table 2: Averages of weight to the birth 1-30 days of age

Age	1-30 days
Sample number	104
Weight range	28k-77 kg
Male average	48.6 kg
Female average	51.3 kg
Birth average	50.8 kg
Race %	
Belgian blue	Zebu Beef master Suizo Charolais Limousin
35	3.1 29.7 8.5 9.5 13.8

Table 3: Average from weight to the weaning of 3-5 months of age

Age	Average	Range kg
3 Months	146.8 kg	95-208
4 Months	177.8 kg	132-256
5 Months	200 kg	168-230
General average	175 kg	95-230

A total of 214 calves Bt × Bi of the races Limousin was weighed, Charolais, Swiss, Beef master, zebu and Belgian b, in winter time, obtaining a weight average of 172.2 kg to the weaning with an average of 4 months of age. The range of its pesos fluctuated of the 104-244 kg with a range of age of 3-5 months. A second sampling of 88 calves was already added in the season of dry of the races mentioned with an average of 4 months age and 177.8 kg of weight. For a final total of 302 heavy calves and a general average of 175 kg to the weaning (Table 3).

For the results for race, they took 127 registrations of males and females of you cross with European livestock ¾, ¼ and half blood. The percentage of each race of the total of the sample, its weight to the weaning and the average was evaluated the weaning of females and males (Table 4).

The results of the GDP were evaluated from the birth until the 3 months and 4 months of age or their weight to the weaning. For their calculation he/she took like reference formulates it mentioned for (Miller, 1999) GDP = PN-PD/days to the weaning. The weights were averaged from the GDP to the 3, 4 and 5 months, adjusted to 90, 120 and 150 days of age, respectively, obtaining a general average of 1.15 kg (Table 5).

A GDP was considered from the birth to the 3 months of age of 1.28 kg on the average and with range of 683 g to 1.93 kg. Of the birth to the 120 days age (4 months), an average of 1.17 kg with a range of 820 g to 1.85 kg and to the 150 days of age a GDP of 1.08 kg on the average and a range of 896 g to 1.31 kg. Obtaining a total average of 1.15 kg to the 4 months of age.

Table 4: Weights to the weaning for race and sex

Race	Males N 65		Females N 62	
	PD kg	(%)	PDkg	(%)
Belgian blue	193.4	41.5	174.6	39.1
Zebu	179.8	12.3	171.5	7.1
Charolais	171.8	17	163.1	14.3
Suizo	169.7	6.2	170	3.5
Beef master	155.1	12.3	175.3	28.5
Brahman	145.3	4.6	164.6	5.3
Simbrah	160	4.6	130	1.8
Limousine	160	1.5	--	--
Total weight average	177.6	100	171.8	100

Table 5: PD and GDP in it crosses of having livestock Zebu × European

Days	PD kg	GDP kg	Range kg
90	146.8	1.21	0.683-1.93
120	177.8	1.17	0.820-1.85
150	200	1.08	0.896-1.31
General average	174.8	1.15	0.683-1.31

DISCUSSION

The pesos to the weaning were bigger for the males with 177.6 kg and for the females with 171.8 kg that that with rope with Van (1998) in races Bt × Bi with 229 kg in males and 216 kg in females obtaining a significantly higher weight for both sexes. The Daily Gain of Weight (GDP) in our study it presented to the 150 days of age an average of 1.08 kg, similar results were in you cross of Patent leather European livestock ×Angus and Holstein × Simmental with daily earnings of 1.11 and 1.17 kg According to Goonewardene and Pang. (1999), what a more significant GDP indicates in you cross them Btx Bi. In comparison Dass *et al.* (1999) it reported pesos very below those obtained in the results of the square 4 on won zebu × Bos taurus in semi-arid climate with earnings to the 180 days of 313.2 g in males and 274.3 g in females. Earnings daily superiors, with 180 days of age and 562 g in calves Holstein is enunciated by Yanar and Zulkadir (2000). In contrast, Vargas *et al.* (1999) it indicated an average of daily gain to the second childbirth of 851g between males and females to the 180 days of born, determining this way the superiority of our results.

CONCLUSION

In conclusion, the pesos of the livestock cross *Bos taurus* × *Bos indicus*, they had better acting, in comparison to the races of having won zebu, since the pesos to the birth, gain of weight and weight to the weaning were superior. The wildness result and adaptability of the zebu, joined mainly with the high production of meat of the European races Belgian blue, Charolais and Beef master, showed the existence of enough variability additive genetic, allowing this way an effective selection in the improvement of the meat production.

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