MPENSATORY GROWTH AND ZERANOL IMPLANTS: EFFECT ON STEER BODY FATS. ?. GARCIA and J. J. CASAL.

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<sup>influence</sup> of Zeranol implants on intramuscular fat content and fatty acid composition of Biggs, and seven fat depots <sup>stud</sup>ica deposition of Zeranol implants on intramuscular fat content and face, and seven fat depots studica is studica in the seven fat depots and seven fat depots and seven fat depots are studica in the seven fat depote and seven fat depote are studica in the seven fat depote are studied in 40 Angus steers under a management program <u>ad libitum</u> or making compensatory TDE The percentages of intramuscular fat were lower in the restricted-implated animals (.05) (105). Discriminant Factor Analysis allows using the fatty acid composition to classify different subcutaneous, brisket and <sup>(1,05)</sup>. Discriminant Factor Analysis allows using the fatty acto composition. <sup>(1,05)</sup> different adipose tissues into groups. Considering the subcutaneous, brisket and <sup>(1,0ephric)</sup> different adipose tissues into groups. Considering the subcutaneous, brisket and <sup>Alferent</sup> adipose tissues into groups. Considering the subcutaneous, <sup>Alfephric</sup> fatty acid composition was possible to get 100% of the steers correctly <sup>Alferent</sup> food restriction and Zeranol implants <sup>supric</sup> fatty acid composition was possible to get 100% of the second s tatty acid composition of steer body fats. .044 Mtroduction

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The quantity and quality of fat from meat animals are important from the economical and Mitional 0<sup>16</sup> Vitional Point of view. Adipose tissue has the capacity to contract or expand in 0<sup>16</sup> view. Adipose tissue has the capacity acid composition is also Nonal Point of view. Adipose tissue has the capacity to contract New to nutritional and experimental treatments and its fatty acid composition is also Nected for these variables. Grazing animals are submitted to periods of limited nutrition by Nowed by periods of abundance. Under such conditions, Alden, 1970; Reid & White, 1977).

Anabolic agents increase weight gain and nitrogen balance and improve feed efficiency agents increase weight gain and nitrogen balance and zeranol implants in the <sup>adbolic</sup> agents increase weight gain and nitrogen balance and improve and implants in the <sup>animals</sup>. The effect of both factors, compensatory growth and zeranol implants in the <sup>animals</sup>. The effect of both factors, compensatory growth and zeranol be important avents increase weight in the set of both factors, compensatory growth and zeranor improvement in the set of both factors, compensatory growth and zeranor improvement is in the set of both factors, compensatory growth and zeranor improvement in the set of the set its effects in carcass and meat quality. The effect in the amount of influence the <sup>vs</sup> effects in carcass and meat quality. The effect in the amount of increase <sup>the</sup> also important because intramuscular fat (marbling) is believed to influence the Aling quality of beef.

This study was undertaken to examine the influence of Zeranol implanted in the quantity of beef. This study was undertaken to examine the influence of Zeranol implanted in the factor 40 suality of intramuscular fat and in the fatty acid composition of dissected fats from 40 to steers we have a stranger with a stranger And the fatty acts compared to the fatty acts co

The <sup>and methods</sup> <sup>distribution</sup> of the 40 Angus steers in the 4 treatment is shown in Table 1. This The methods distribution of the 40 Angus steers in the 4 treatment is shown in range Mare, One Part of a Fumagalli et al.(1990) work and additional information could be found Marke, One addite <sup>th</sup> is Part of a Fumagalli et al.(1990) work and additional information courses where additional group from each nutritional level was slaughter at the end of Period 1 <sup>th</sup> to establish the second state of the two groups. Mused to establish baseline fat composition for the two groups.

Page Major (PM) and Longissimus dorsi (LD): A slice of approximately 150 g from the Adde of the muscle. the muscle. Wot sample (ST) and <u>Biceps brachii</u> (BB): The total muscles were minced Semitendinosus (ST) and <u>Biceps brachii</u> (BB): I... Mout sample of approximately 300 g was kept from each. Mous for approximately solvering the eye muscle in the

<sup>wot sample of approximately 300 g was kept from each. <sup>the fat (SB)</sup>: Fat covering the eye muscle in the area from the tenth to the twelfth</sup> Net (SB): Fat coverses
Net fat (B): External brisket fat at the 5-6a sternebrae.
Not (C), subescapular (SE erinephric

<sup>sphric</sup> (PN), pelvic (PV), cod (C,, sample of approximately 50 g from each.  $(P_N)$ , pelvic (PV), cod (C), subescapular (SE) and brisket internal (BI): An

<sup>Sample</sup> of approximately 50 g from each. <sup>Need</sup> Muscles were kept at -25C until analyzed. Two aliquot samples of 10 g each, from the 16 then extracted with petroleum ether (boiling point 68C) <sup>nuscles</sup>, were first dried and then extracted with petroleum ether (borring), <sup>hs</sup> to determine the total weight of chemical fat. A third aliquot sample was <sup>acted</sup> <sup>accordin</sup> <sup>16</sup> <sup>houses</sup>, were first dried and then extracted with for the sample of the second s

The triglycerides were isolated by TLC and the fatty acid concentrations from the total the triglyceride fractions were determined by acid by the triglyceride fractions were determined by acid by the triglyceride fractions from the total by the triglyceride fractions were determined by the triglyceride fractions from the total by the triglyceride fractions were determined by the triglyceride fractions from the total by the triglyceride fractions from the total by the triglyceride fractions from the total by the triglyceride fractions were determined by the triglyceride fractions from the total by the total the triglyceride fractions were determined by GLC (Garcia et al., 1979). The lipids extracted from the adipose tissue with petroleum ether and the triglycerides were ration the other lipids by TLC. The fatty acid compared to the triglycerides were from the other lipids by TLC. The fatty acid composition was determined by GLC separation methyl esters (Garcia et al. 1979)

Multivariate analysis of variance was performed using a least square- model. prince to prince the second state of the second se component analysis (PCA) was performed using the correlation matrix. Discriminant analysis (DFA) was performed to classify the adipose tion analysis (DFA) was performed using the correlation matrix. Discriminant if atty acid composition.

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## Results and discussion

The percentages of intramuscular fat in BB, LD, PM and ST muscles in the experimental groups, RO ZO, RO ZI, RI ZO and RI ZI are presented in Table 2. Not signific the differences among RO ZO, RO ZI, RI ZO and RI ZI are presented in Table 2. Not signified the but they differ from the RI ZI group (p<.05). Reductions is studied were studied whenbut they differ from the RI ZI group (p<.05). Reductions in marbling in implanted steers have been when compared to nonimplanted steers have been reported by Prior el al. (1978)experiment only was noticeable in the steers that have been previously restricted. of the data set extracted two axes which accounted for 74.8 % of data variance shared in the steers that have been previously restricted. 53.5 % and 21.5 % between axis 1 and 2, respectively. Three variables fell into one first axis (LD, PM and ST MF% ) of the first axis (LD, PM and ST MF\% ) of the first axis ( with high loading on the first axis (LD, PM and ST MF%) while BB MF% showed preferring to a start the second start of the showed preferring the second start at the se loading on axis 2. Inside the cluster the variables were significantly and  $po_{st}^{opt}$  is between PC and (r > .70, p>.05). The MF% in BB was not also p>.05). The MF% in BB was not different when the experiment

In all the tissues, specially in the restricted steers, a general effect the fatty of the fatty percentages of stearic acid was observed (Fig.1). The DFA shows that using the difference of the diffe composition grouping the muscles in their respective classes was achieved at degrees. LD fatty acids allows the grouping of 94% of much degrees. LD fatty acids allows the grouping of 94% of muscles from restricted steers (). 3).

The classification matrix from the DFA using the fatty acid composition different fat depot is shown in Table 4. The part is the different fat depot is shown in Table 4. different fat depot is shown in Table 4. The percentage of correct considering the can classified using SB fatty acid composition from the restricted ones (95%). Considering the steers of SB, B and PN fatty acid composition from the restricted ones (95%). Consider if if ied (Fig.2) showing clearly the effect of both factors ified (Fig.2) showing clearly the effect of both factors, restriction and zeranol in the fatty acid composition of steers body fats. Both factore

## Conclusions

Reduction in intramuscular fat was found in restricted-implanted steers. restriction and Zeranol implants affected the fatty acid composition of body fats.

## References

1957. A simple method for the <sup>isoletid</sup> issues. J. Biol. Chem. 226 407 509.

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	10		Low energ	gy diet		High	n ener	rgy	diet-	36 mg	Zer	ano
ble 2- Percen	tages of final	of muscul	ar fat in	n BB, LD, Pl	M and ST	musc	les.					
eatment		(1) Valu										
20	I	BB		LD		P	M				ST	
2.7	I	F		I F		I	F			I	F	
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.4		4.5 a		4.8 a			6.2	a			3.3	a
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Fig.2. Effects of restriction and Zeranol implants.DFA performed to classified in groups according to thefatty acid composition.38.9%

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**R0 I1** 

R1 M

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