ARE HORMONAL GROWTH PROMOTANT EQUALLY EFFECTIVE ACROSS ALL MATURITY TYPES OF CATTLE?

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The scientific and commercial literature relevant to the use of hormonal growth promotants in cattle distinguish between heifers, steers or bulls and their expected differences in response, but provides no indication as to possible differences due to maturity type of the targeted animals. The information presented here addresses this issue. It should be noted that the data discussed represents additional information obtained while conducting a feedlot competition trial among beef producers in the south west region of Western Australia.

Ninety-six weaner steers representing nineteen different breeds and crosses were penned in pairs of same origin, and fed ad libitum on a high grain mixed diet (barley 64%, hay 32.3%, urea 1.7% and mineral mix 2%; CP 13 %, ME 10.8 MJ/kg DM) 87 days prior to slaughter. Based on producers decision, 62 steers out of the 96 entries were implanted with Ralgro on day -1 of the feeding period. All animals were weighed and scanned (Real time ultrasound scanner) at the P8 site to estimate fat depth at the beginning and end of the trial and at fortnightly intervals. At slaughter hot standard carcass weight and fatness (P8 site) were individually recorded. Retail meat yield in 27 carcasses was determined at a number of super markets in the Perth Metropolitan area. A maturity index for each animal was created by the ratio between rate of fat deposition and rate of liveweight change. Medium maturity type animals were those within a mean value ± half standard deviation. Early and late maturity animals were the corresponding tails at either side.

The gain in carcass saleable meat (estimated as Meat Gain=liveweight gain x dressing % x saleable yield %) was particularly influenced by an interaction between maturity type and implant. The regression of meat gain on maturity type without an implant indicated a significant relationship where the gain in meat yield (Y) decreased as the maturity (X) moved from late to early type ($Y = -2.09X+0.475$; $R2=0.491$; $n=9$; $P<.05$). This would be the expected trend based on the biological characteristics of maturity of the animals. In contrast, when a similar range of late, medium and early maturity steers were implanted, this relationship was lost ($Y = -0.289X+0.420$; $R2=0.01$; $n=18$; NS). The loss of relationship and the different slope between the no implanted and implanted steers (-2.09+0.80 and -0.289+0.67 (±se), respectively) were due to an increase in meat gain by the early and medium maturity type of animals as opposed to no response observed in late maturing animals to the implant. A similar trend was evident in the ADG data from all steers implanted vs no implanted. Some overall animal performance results are presented below (mean±std):

Maturity	NO IMP EARLY	IMP EARLY	NO IMP MEDIUM	IMP MEDIUM	NO IMP LATE	IMP LATE
No. obs	4	8	8	14	5	9
Liveweight kg:						
Initial	257(27.1)	248(12.8)	251(26.4)	242(15.2)	241(25.4)	249(19.8)
Final	336(27.6)	334(17.6)	333(34.4)	339(17.0)	322(28.1)	336(23.6)
Change, kg/d	1.00(0.13)	1.10(0.12)	1.08(0.20)	1.26(0.19)	1.10(0.21)	1.09(0.13)
Final P8 mm	10.4(0.4)	10.4(1.7)	7.8(1.6)	8.0(1.4)	4.9(2.4)	4.9(1.6)
Retail meat yield:						
No.obs	2	6	5	9	2	3
Saleable, %	63.6±2.3	64.8±3.0	67.6±1.8	65.1±2.5	68.3±1.8	69.6±4.4
Fat, %	15.9±1.0	16.0±2.6	12.1±1.6	14.9±2.1	10.3±1.5	9.6±2.4
Meat gain, g/d	315±54	390±40	359±65	422±72	438±35	380±12

This information provides initial evidence of an interaction between maturity type of cattle and their response to a hormonal growth promotant. Previous and present nutritional status, in particular the energy:protein ratio available for absorption, may be a third factor involved worth considering.

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