

EFFECTS OF PRODUCTION SYSTEM AND GROWTH PROMOTANTS ON THE PHYSIOLOGICAL MATURITY SCORES IN STEERS

Ó. López-Campos^{1,2,*}, J. L. Aalhus¹, N. Prieto^{1,3}, I. L. Larsen¹, M. Juárez¹, and J. A. Basarab⁴

¹Agriculture and Agri-Food Canada, 6000 C&E Trail, Lacombe, Alberta, Canada, T4L 1W1;

²Livestock Gentec, 1400 College Plaza 8215 112 Street, Edmonton Alberta T6G 2C8;

³Dept. Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, Alberta, Canada T6G 2P5;

⁴Alberta Agriculture and Rural Development, Lacombe Research Centre, 6000 C & E Trail, Lacombe, Alberta, Canada T4L 1W1

*oscar.lopezcampos@agr.gc.ca; olopezcampos@gmail.com

In the absence of verifiable chronological age, both dentition and carcass ossification have been used as physiological indicators. Physiological maturity is also important in the determination of meat quality. Changes in production practices may have altered the relationship between chronological age and physiological maturity. The objective of this study was to determine the impact of calf-fed vs. yearling-fed production systems with and without aggressive growth implant, on the physiological indicators of chronological age.

Two hundred and twenty-four crossbred steers were used to evaluate the impact of calf-fed (harvested at 11-14 mo of age) vs. yearling-fed (harvested at 19-23 mo of age) production systems with and without aggressive growth implant, on the physiological indicators of chronological age. There were significant interactions ($P < 0.001$) between the production system and the implanting strategies on the frequencies of the carcasses showing ossification in the sacral, lumbar and thoracic vertebral column portions. The results indicate physiological age of the carcasses might be dramatically impacted depending on the combination of the production system and growth implant strategy. However, when birth date documentation is not available, a compendium of descriptors (dentition and ossification processes at the vertebrae) should be taken into consideration in order to establish the eligibility of the carcass to meet certain age criteria.

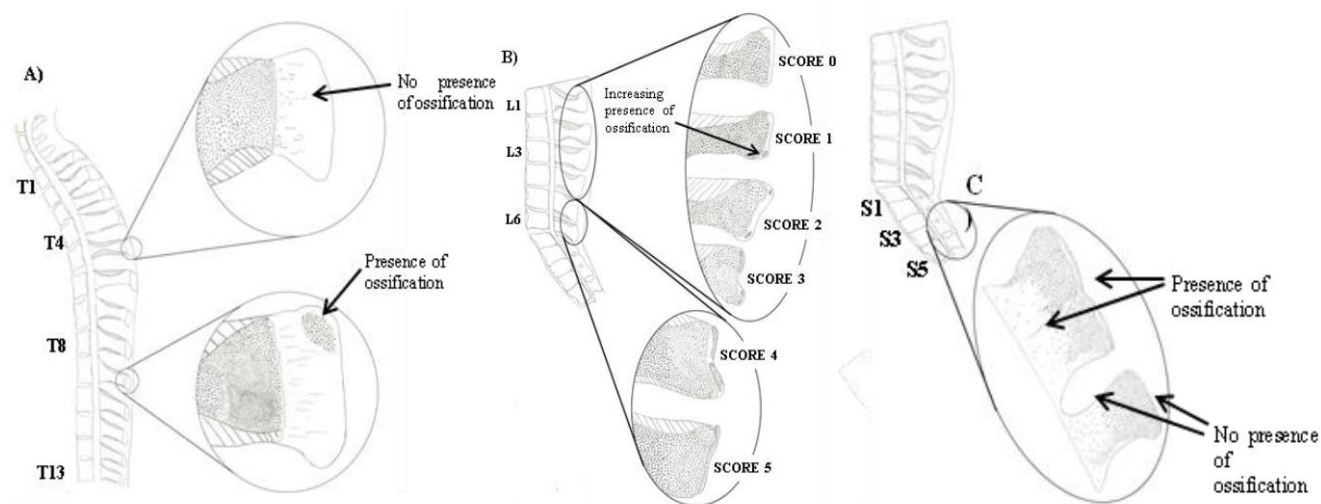


Figure: Overview of the criteria established in the Canadian beef age verification study (Robertson *et al.* 2006) for the thoracic (A), lumbar (B) and sacral regions (C) used in the present study.

Technical drawings by Mr. Christopher Villacorta-López