EFFECTS OF ADDING A QUALITY COMPLEX ADDITIVE IN A STARTING DIET ON FEEDLOT PERFORMANCE OF BEEF CATTLE

Brisa del Mar Torres-Martínez[1], Gastón R. Torrescano-Urrutia[1*], Rey David Vargas-Sánchez[1], Armida Sánchez-Escalante[1], José Luis Galindo-Guzman[2], José Alejandro Vizcarra-Ibarra[2], Rafael Trinidad Orozco-Gomez[2]

[1] Centro de Investigación en Alimentación y Desarrollo, A.C. (CIAD, A.C.), Hermosillo, Sonora, Mexico.

[2] Baccune, El Salto, Jalisco, Mexico.

*Corresponding author email: gtorrescano@ciad.mx

I. INTRODUCTION

Numerous feed additives can be used in the fattening diet of livestock aiming to improve feedlot growth performance parameters, such as weight gain, feed consumption, feed efficiency, mortality, morbidity, and carcass quality, which are all closely related to production costs and likelihood of profitability. Some examples of such feed technologies can be represented by acidifiers, essential oils, fatty acids, amino acids, probiotics, prebiotics, vitamins, minerals, enzymes, and phytogenics, among others [1,2]. A balanced combination of nutrients and specialty feeds has shown the ability to positively modulate intestinal tract microbiota activity while conferring immune system-stimulating properties [1]. Thus, the present study was designed to evaluate the effects of the dietary addition of QUALITY COMPLEX ADDITIVE® (QCA) offered during receiving diets on feedlot cattle growth performance.

II. MATERIALS AND METHODS

The experimental phase of this study was carried out in a feedlot located in Veracruz; a herd was offered treatments during the initial stage of production, as follows: A) nutritional packet QCA (0 and 3 kg/ton feed; DM basis) for 15 and 21 days, depending on the weight of the animal (heavy and light cattle, respectively); and B) Control (no nutritional packet). Nutritional packet QCA is mainly composed of yeasts, vitamins, and minerals. Three assessments [3,4] were performed: 1) mortality and morbidity were registered using 20 non-supplemented pens (Control, n = 1211 animals) and 20 QCA-supplemented pens (n = 1265 animals); 2) feed consumption was recorded for 25 days (Control, n = 1576 animals; QCA, n = 7335 animals); and 3) at the end of feeding cycle the average daily gain (ADG) and feed conversion (FC) were recorded (Control, n = 49173 animals; QCA, n = 29261 animals). The results were expressed as mean ± standard deviation and a t-test was used at $P < 0.05$ (NCSS version 2011).

III. RESULTS AND DISCUSSION

As shown in Figure 1, the inclusion of QCA in the initial diet positively affected feedlot growth performance and animal health. A notable decrease in mortality ($P < 0.001$) and disease incidence ($P < 0.001$) was observed among animals that received QCA compared to the Control group. In addition, a greater ($P < 0.001$) feed consumption and ADG ($P < 0.05$) were observed in the QCA group (from day 11 to day 25) and improved FC ($P < 0.001$). Current findings strongly suggest its potential application as an effective strategy to optimize cattle performance and health in intensive production systems. It has been reported that QCA supplementation in the finishing diet (last 64 days) improved the apparent total digestibility of nutrients in the tract, which increased the deposition of subcutaneous fat without affecting the growth performance of the animal and the quality of the carcass [5]. Moreover, it has been reported that the nutritional packet QCA is mainly composed of yeasts, vitamins, and minerals, and it is reported that these components seek to improve digestive health and counteract livestock challenges with energy diets. Live yeasts are known to stabilize pH and increase digestibility,

vitamins promote microbial growth and reduce oxidative stress, and are crucial for metabolism, while electrolytes are essential for homeostatic balance [5,6].

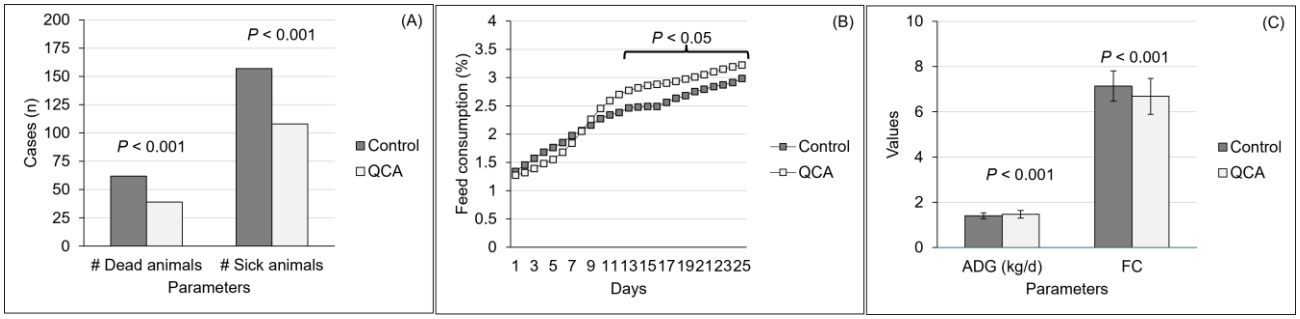

Figure 1. Effect of incorporating QCA into a starting diet on selected productive parameters of beef cattle. Average daily gain (ADG) and feed conversion ratio (FC).

IV. CONCLUSION

In summary, the results presented support the usefulness of QCA as a valuable supplement to improve beef cattle's productivity and welfare in the initial phase of intense fattening. However, additional studies are recommended to understand the underlying mechanisms of action better and thus be able to evaluate its long-term economic viability in different livestock production scenarios.

ACKNOWLEDGEMENTS

Rey David Vargas-Sánchez gratefully acknowledged the fellowship received from CONAHCYT "Investigadoras e Investigadores por México" Program.

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