Optimizing growth performance and carcass characteristics of beef cattle

Many of the variables that are considered when creating an implant program are examined in a new article in Applied Animal Science

Champaign, IL, February 7, 2022—In the beef industry, producers strive to optimize the growth performance and carcass characteristics of their cattle. Establishing best practices to meet this goal is challenging because so many variables interact during the final phase of production. A team of scientists at Elanco Animal Health, Greenfield, IN, USA, recently conducted three experiments to analyze the variables of feeding duration, dose of a growth-promoting implant, and terminal window duration. Their conclusions regarding the effects on cattle performance and carcass characteristics are presented in a new article in *Applied Animal Science*.

One variable considered was feeding duration, or days on feed, and one of their experiments focused on days on feed and terminal window. The researchers found that total weight gain, final body weight, and hot carcass weight increased but average daily gain decreased with increased days on feed. "Results of the first experiment indicate that situations may exist where increased days on feed may be beneficial in heifers sold on a carcass basis, despite the negative effects on live average daily gain and feed efficiency," said lead author William Kayser, PhD, Elanco Animal Health.

Growth-promoting implant dose is also analyzed in the article. Two of the three experiments conducted looked at implant dose, and both showed increased average daily gain and feed-to-gain ratio when heifers were given trenbolone acetate and estradiol (Component TE-200, Elanco) with tylosin as the first implant and at reimplant. The second experiment also showed increased hot carcass weight but reduced estimated body fat with trenbolone acetate, estradiol, and tylosin. In the third experiment described, the researchers studied a large data set from an industry database that receives data from approximately eight million cattle per year. Results from this experiment showed steers that received a greater dose of trenbolone acetate exhibited a more favorable feed-to-gain ratio.

Caption: Cattle type, implant program dose, days on feed, and terminal window were evaluated to help identify optimal growth performance and carcass characteristics of beef steers and heifers. (Credit: iStock.com/asikkk).

When examining terminal window in the two experiments, the scientists found the results unclear. However, in the observational study the effects of terminal window duration were obvious and repeatable, highlighting the value of production databases such as Benchmark. Kayser stated, "These results suggest that there is no optimum terminal window, rather a threshold at which live growth is negatively impacted when exceeded."

"Consideration of cattle type, implant program dose, days on feed, and terminal window are needed when developing implant programs," said David K. Beede, PhD, Editor in Chief of *Applied Animal Science*. The article offers an in-depth look at many of the factors that need to be examined when seeking to optimize growth performance and carcass characteristics in beef cattle.

The article appears in the February issue of *Applied Animal Science*.

Notes for editors
"Effects of feeding duration, implant dose, and terminal window duration on growth performance and carcass characteristics of feedyard steers and heifers," by W. C. Kayser, M. S. Brown, N. A. Pyatt, L. J. Walter, S. K. Linneen, C. Maxwell, B. P. Holland, and A. B. Word (https://doi.org/10.15232/aas.2021-02218), *Applied Animal Science*, volume 38, issue 1 (February 2022), published by Fass Inc. and Elsevier.

This article is available at https://doi.org/10.15232/aas.2021-02218.

Full text of the article is also available to credentialed journalists upon request; contact Brittany Morstatter at +1-217-356-3182 ext. 143 or ARPAS@assochq.org to obtain copies. To schedule an interview with the author(s), please contact William C. Kayser at William.Kayser@ElancoAH.com.

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