Dairy Beef Quality Assurance: Do Reproductive Hormone Injections in Dairy Cows Cause Significant Edible Tissue Damage?

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Introduction

The effects of reproductive hormone injections on beef quality and tenderness in dairy cows have not been well-described. The dilemma in Beef Quality Assurance for the dairy industry is the difficulty of injecting in front of the shoulder when animal handling facilities often include headlocks only. Using information about muscle damage caused by injections of reproductive hormones, producers, and veterinarians can make better decisions about injection practices which adequately balance meat quality with human safety.

Materials and Methods

Lactating dairy cows were injected in the muscles of the rear leg with GnRH, dinoprost, flunixin (positive control), saline, or sham injection (negative control), in a cross-over design. Repeated blood samples were collected over the following 72 hours and assayed for the muscle enzyme creatine kinase (CK). Treatment comparisons were made using analysis of variance of areas under the curve (time vs CK concentrations with baseline CK values subtracted).

Results

Greater estimated grams of muscle damage were found for dinoprost and flunixin when compared to GnRH, saline or sham injection.

Significance

Of the two most commonly injected reproductive hormones, only dinoprost was found to cause more muscle damage than sham injection or saline. Further work to follow cows injected with reproductive hormones to harvest to evaluate tenderness is needed to corroborate these results.