

The Effect of Post-Weaning Steer Diets Supplemented With Field Pea, Flaxseed and a Field Pea-Flaxseed Combination on Feedlot Finishing Performance, Carcass Quality and Immune Response

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**Summary**

This study objective was to compare the effect of feeding field pea, flaxseed and field pea-flaxseed combination on steer performance and immune response during the 50-d post-weaning period (PWP). Subsequently, the effect on feedlot finishing performance, immune response and carcass quality were determined. Crossbred Angus x Hereford x Gelbvieh steers (castrated male calves, age=7.4 month, n=173) were used in the 3 year replicated study. The four pelleted 50-d PWP diets (PWD) were: 1) Control (C), 2) 12.5% Flaxseed (FLX), 3) 20.0% Field Pea (P), and 4) 20.0% Field Pea + 12.5% Flaxseed (PFLX). In the PWP, average daily weight gain (ADG) was increased ( $P<0.05$ ) for FLX and PFLX when compared with C and P, but feed cost/kg of gain for FLX and PFLX was decreased ( $P<0.05$ ). In the feedlot period, initial weight, slaughter weight, fattening period, weight gain, ADG, average daily feed intake and feed conversion ratio was not significantly different among the diets ( $P>0.10$ ). For carcasses, PWD did not affect hot carcass weight, marbling score, percent US Department of Agriculture quality grade ( $P>0.05$ ); however, FLX treatment reduced rib-eye area (REA), while P treatment increased REA ( $P<0.05$ ). FLX and PFLX treatments did not increase serum neutralization titer level and did not reduce morbidity ( $P=0.96$ ) and health care cost ( $P>0.10$ ). Overall, Flaxseed improved 50-d PWP performance, but PWDs had no carryover effect on feedlot finishing period net return.

**Keywords:** Beef cattle steer, Carcass quality, Field pea, Flaxseed, Immune response