

# Effects of Functional Oils and Monensin Alone or in Combination on Feedlot Cattle Growth and Carcass Composition (Progress Report)

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### Summary and Implications

This report represents the first trial of a study consisting of a commercial mixture of functional oils (Essential, Oligo Basics USA LLC, Wilmington, DE) used alone and in combination with Monensin to evaluate the effects on steers performance when fed a high concentrate diet. One hundred and twenty steers, average initial weight 322 kg, were divided into five treatments with four pens per treatment and six steers per pen. The treatments were Control (C), Monensin (223 mg/hd/d) (M), Monensin (223 mg/hd/d) + Essential (250 mg/kg DMI) (ME), Essential Low (250 mg/kg DMI) (EL), and Essential High (500 mg/kg DMI) (EH). All steers were fed the same diet on an ad libitum basis, treatments M and EL for 172 days and treatments C, ME, and EH for 179 days. Steers were harvested at an average weight of 617 kg. Results to date suggest that cattle provided functional oils in their diet perform equally as well in the feedyard and in carcass composition as cattle provided a more traditional ionophore in their diet.

### Introduction

Functional oils, natural products, have been introduced into the United States because they are thought to offer similar benefits as ionophores without the drawbacks of being synthetic products. It is thought that functional oils will increase average daily gain and decrease feed conversion, thus increasing feed efficiency. They are natural products. The functional oils used in this study are composed of cashew nut shell oil and castor oil.

### Materials and Methods

One hundred and twenty steers were implanted with Component E-S, blood was collected and weights were recorded on day one of the trial. Cattle were then weighed every 28 days, until they reached an average weight of 617 kg.

Feed samples were collected each week. Hay, corn and wet distiller's grains were dried and dry matter percent was calculated. For each 28 day period the average daily gain

was calculated for the period and for the trial to date. The dry matter intake was also calculated for each period, for each ingredient in the diet.

The steers were implanted again with Component TE-S 137 days into the trial. Blood was collected again when they were weighed off test and before being sent for harvest. Carcass data were collected. Hot carcass weight, backfat, ribeye area, quality grade, yield grade, KPH, and liver abscesses were recorded.

### Results and Discussion

Average daily gain was higher ( $P<0.05$ ) and feed:gain was better ( $P<0.05$ ) for the M treatment when compared to the EH treatment but not significantly different to the other treatments (Table 1). However, neither hot carcass weight, nor carcass efficiency, calculated as kg of DMI divided by hot carcass weight, were different among treatments. Dressing percent was lower for the M and EL treatments when compared to ME and EH (60.2, 60.2, 62.2 and 62.2%, respectively,  $P<0.05$ ). The C treatment (61.2%) was not significantly different from any other treatments. Quality grades (1=low standard, 7=low choice, 12=high prime) for C, ME and EL treatments were, 6.46, 6.50 and 6.57, respectively, and were higher ( $P<0.05$ ) than the M treatment and lower ( $P<0.05$ ) than the EH treatment, 6.25 and 7.06, respectively. There were no differences in ribeye area, backfat, KPH, or yield grade between treatments.

These results are of the first trial. A second trial is currently underway.

### Acknowledgements

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**Table 1. Cattle feedlot performance and carcass data.**

	Diets				
	C <sup>1</sup>	M	ME	EL	EH
Initial wt, kg	319	321	319	319	321
Final wt, kg	618	626	619	618	611
Daily DMI, kg	13.51	13.39	13.31	13.43	13.81
ADG, kg/d	3.45 <sup>b</sup>	3.64 <sup>ab</sup>	3.46 <sup>b</sup>	3.59 <sup>b</sup>	3.41 <sup>c</sup>
F:G, kg DM/kg gain	8.09 <sup>b</sup>	7.54 <sup>a</sup>	7.94 <sup>b</sup>	7.77 <sup>b</sup>	8.52 <sup>c</sup>
Yield grade	2.79	2.54	2.67	2.70	2.64
Quality grade <sup>2</sup>	6.46 <sup>b</sup>	6.25 <sup>c</sup>	6.50 <sup>b</sup>	6.57 <sup>b</sup>	7.06 <sup>a</sup>
Low Choice or higher, %	54	55	58	73	74

<sup>abc</sup>Means within rows with different superscripts differ (P<0.05).

<sup>1</sup>C=control, M=monensin (223mg/hd/d), ME=monensin (223mg/hd/d) + Essential (250mg/kg DMI), EL=Essential Low (250mg/kg DMI), EH=Essential High (500mg/kg DMI).

<sup>2</sup>High Choice=9, Choice=8, Low Choice=7, High Select=6.