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Efficacy of DEPO-MGA® in Feedlot Heifers¹

Jack G. Riley, Ron Pope, and Larry O'Neill

Summary

Three levels of melengestrol acetate (30, 60, and 90 mg) injected subcutaneously as a liquid (DEPO-MGA®) in the ear of heifers yielded high performance results comparable to feeding 0.5 mg of MGA per head daily. Heifers fed 0.5 mg MGA daily gained 6% faster and were 11% more efficient than heifers not receiving MGA. This study will be pooled with trials from 13 other locations in the U.S. to determine if further development and FDA clearance of DEPO-MGA® will be pursued by the Upjohn Company.

Introduction

Melengestrol acetate (MGA®) is a synthetic progestogen currently marketed by Upjohn as MGA-200® and MGA-500® premixes with label claims for estrus suppression, increased weight gain, and improved feed efficiency in heifers fed for slaughter. Currently approved formulations of MGA require daily oral administration in the feed. Oral administration has several limitations: 1) separate feed formulations are required if both steers and heifers are being fed; 2) because MGA is not approved for steers, it prevents feeding of mixed pens of steers and heifers for optimum performance; 3) FDA regulations prohibit dietary MGA in combination with several other popular feed additives; 4) MGA must be withdrawn from feed 48 hours prior to slaughter; and 5) additional premix storage and record keeping are required. A long-acting injectable formulation of MGA would remove these limitations.

Upjohn has developed a long-acting injectable liquid MGA formulation, called DEPO-MGA® and is conducting efficacy studies with feedlot heifers at 14 locations in the United States. Kansas State University conducted two of these trials; one at the Southwest Kansas Branch Station, and one at the Beef Research Unit in Manhattan, which is summarized in this report.

Experimental Procedures

Ninety non-pregnant, yearling, British and British crossbred heifers purchased locally were used. The experiment consisted of three weight replicates of heifers on each of the five treatments: 1) control (no MGA); 2) MGA fed at 0.5

¹ DEPO-MGA® and partial financial support provided by Upjohn Co., Kalamazoo, MI. Appreciation is expressed to Mr. Thomas Schriemer, Clinical Research Coordinator.

mg/hd/d; 3) 0.5 ml DEPO-MGA (30 mg melengestrol acetate); 4) 1 ml DEPO-MGA (60 mg melengestrol acetate); and 5) 1.5 ml DEPO-MGA (90 mg melengestrol acetate). These dosages were selected by Upjohn to refine the estimates of optimum dosage and were based on two preliminary studies. The appropriate volume of DEPO-MGA was injected subcutaneously in the back of the left ear using an 18 gauge x 1.5 inch needle. Direction of needle insertion was from the ear tip toward the base, with the drug deposited near the base of the ear. The heifers had not been implanted previously and implants were not used in this study. The final diet (D.M. basis) was 15% corn silage, 79.2% dry rolled sorghum grain, and 5.8% supplement. No attempt was made in our study to monitor estrus activity, since the heifers were confined in small pens with concrete flooring. However, estrus suppression data will be collected at five of the other trial locations. The 103-day trial began August 7 and ended November 18, 1986.

Results and Discussion

Table 10.1 summarizes heifer performance on the five treatments. Growth and feed efficiency were quite acceptable for all treatments; however, the control heifers gained the slowest (3.0 lb/hd/d) and were the least efficient (7.85 lb feed DM/lb gain). Heifers fed 0.5 mg MGA/hd/d gained 6% faster and were 11% more efficient than controls. All three DEPO-MGA treatments improved gain and efficiency compared to the controls and results were quite comparable to those with oral MGA. There were no differences in quality or yield grades of heifers among the five treatments. DEPO-MGA appears to be an acceptable alternative to feeding MGA. However, further development of this product will depend upon the combined results from all 14 locations.

Table 10.1. Efficacy of DEPO-MGA in Feedlot Heifers Fed 103 Days

Item	Control	DEPO-MGA Injected			
		0.5 mg/hd/d	30 mg	60 mg	90 mg
No. steers	15	15	15	15	15
Initial wt, lb	718.4	719.8	720.1	720.8	720.5
Final wt, lb	1027.4	1047.4	1050.3	1055.3	1043.8
Gain, lb	309.0	327.6	330.2	334.5	323.3
Daily gain, lb	3.00 ^a	3.18 ^b	3.21 ^b	3.25 ^b	3.14 ^{ab}
Intake (DM), lb	23.56 ^a	22.24 ^b	23.23 ^a	23.01 ^a	22.87 ^{ab}
Feed/gain (DM/lb)	7.85 ^a	6.99 ^b	7.24 ^b	7.08 ^b	7.28 ^b

^{ab} Means in same row with different superscripts are different ($P < .05$); however final conclusions will depend upon statistical analysis of pooled data from all 14 locations.