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# Effects of supplementing corn silage with MGA and feeding varying levels of sorghum grain to feed-lot heifers

L.I. Smart

C.L. Drake

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## Abstract

Melengestrol acetate (MGA) 1S a new drug recently approved for use in the supplement portion of rations of feed-lot heifers. The recommended level is from 0.25 to 0.50 mg. per head per day. A 48-hour withdrawal period is required before slaughter. Several experiment stations have shown improved rate of gain, feed utilization and suppressed estrus in feed-lot heifers on high concentrate rations plus MGA.



## Keywords

Cattlemen's Day, 1968; Report of progress (Kansas State University. Agricultural Experiment Station); 518; Beef; Corn silage; MGA; Sorghum grain; Feedlot heifers

# Effects of Supplementing Corn Silage with MGA[1] and Feeding Varying Levels of Sorghum Grain to Feed-lot Heifers

L.I. Smart and C.L. Drake

Melengestrol acetate (MGA) is a new drug recently approved for use in the supplement portion of rations of feed-lot heifers. The recommended level is from 0.25 to 0.50 mg. per head per day. A 48-hour withdrawal period is required before slaughter. Several experiment stations have shown improved rate of gain, feed utilization and suppressed estrus in feed-lot heifers on high concentrate rations plus MGA.

Recently there has been much interest in feeding more silage to feed-lot cattle. Since more pounds of beef can be produced per acre farmed with silage than with grain, it seems reasonable that more silage should be fed. The amount of grain needed to supplement silage for best results has not been determined.

Primary purposes of this study were to:

1. Evaluate effects of MGA with high corn silage rations.
2. To study the effects of adding varying amounts of sorghum grain to corn silage.
3. Try to determine the best time during the feeding period to add grain.
4. To determine the effects of MGA and grain on carcasses of silage-fed heifers.

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[1] MGA furnished by Upjohn Company, Kalamazoo, Mich.

## Materials and Methods

Eighty Hereford heifers averaging 678 pounds each were divided into 8 lots of 10 each. All were full fed corn silage plus the amount of grain for 112 days as indicated in table 19. Carcass data were obtained after the heifers were slaughtered.

Protein supplements were adjusted to keep the protein level approximately the same among all rations. The chemical analyses of the corn silage are presented in table 20.

## Results and Discussion

Feed-lot results are presented in table 21. All MGA lots gained faster than the corresponding lots without MGA. The addition of grain increased the cost of gain. There were no real differences in carcass data as presented in table 22.

Table 19

Daily Treatment Per Head

| Lot No. | Treatment |
|---|---|
| 3 | Corn silage ad libitum<br>Rolled sorghum grain fed at 0.75% of average body weight adjusted every 28 days.<br>2 lbs. of protein supplement |
| 4 | Same as lot 3 except supplmment contained 0.35 mg. MGA |
| 5 | Corn silage ad libitum<br>Rolled sorghum grain fed at 1.5% of average body weight adjusted every 28 days.<br>2 lbs. of protein supplement |
| 6 | Same as lot 5 except supplement contained 0.35 mg. MGA |
| 9 | Corn silage ad libitum<br>Rolled sorghum grain fed the last 56 days at 1% of average body weight the first 28 days and 2% the last 28 days.<br>2 lbs. of protein supplement |
| 10 | Same as lot 9 except supplement contained MGA |
| 11 | Corn silage ad libitum until last 28 days then reduced to 6 pounds.<br>Rolled sorghum grain fed to consumption last 28 days.<br>2 lbs. of protein supplement. |
| 12 | Same as lot 11 except supplement contained MGA |

Table 20

Chemical Analyses of Corn Silage

| | |
|---|---|
| Protein (N X 6.25) | 2.98% |
| Ether extract | 0.73 |
| Crude fiber | 6.65 |
| Moisture | 68.59 |
| Ash | 2.17 |
| Nitrogen-free extract | 18.88 |
| Carbohydrates | 25.53% |

Table 21

Feed-lot Data of Heifers Full Fed Corn Silage Supplemented With MGA and Varying Levels of Sorghum Grain

| Ration per day | Corn silage Sorghum grain fed at .75% of av. body wt. Protein supplement | | Corn silage Sorghum grain fed at 1.5% of av. body wt. Protein supplement | | Corn silage Sorghum grain fed last 56 days; 1% first 28 days, 2% last 28 days Protein supplement | | Corn silage Sorghum grain fed to Consumption last 28 days Protein supplement | |
|---|---|---|---|---|---|---|---|---|
| Hormone | Control | MGA[1] | Control | MGA | Control | MGA | Control | MGA |
| Lot No. | 3 | 4 | 5 | 6 | 9 | 10 | 11 | 12 |
| No. heifers | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Av. initial wt., lbs. | 683 | 682 | 677 | 673 | 675 | 675 | 678 | 678 |
| Av. final wt., lbs. | 888 | 930 | 926 | 930 | 898 | 936 | 915 | 921 |
| Total gain, lbs. | 205 | 248 | 249 | 257 | 223 | 261 | 237 | 243 |
| Av. daily gain, lbs. | 1.81 | 2.20 | 2.20 | 2.27 | 1.97 | 2.31 | 2.10 | 2.15 |
| Feed per lb. gain, lbs. | 25.9 | 23.1 | 20.7 | 20.8 | 24.7 | 21.8 | 21.9 | 22.9 |
| Feed cost per cwt. gain $ | $19.62 | $17.27 | $20.15 | $20.35 | $18.90 | $16.48 | $16.15 | $16.55 |
| Daily ration per heifer, lb. | | | | | | | | |
| Corn silage | 39.5 | 43.1 | 32.6 | 33.6 | 38.4 | 42.3 | 39.5 | 42.6 |
| Sorghum grain | 5.6 | 5.7 | 11.0 | 11.6 | 6.3 | 6.2 | 4.6 | 4.7 |
| Supplement | 1.8 | 2.0 | 2.0 | 2.0 | 2.0 | 1.9 | 1.9 | 1.9 |
| Av. feed consumed per day, lbs. | 46.9 | 50.8 | 45.6 | 47.2 | 46.7 | 50.4 | 46.0 | 49.2 |
| Feed per lb. gain, lb. | | | | | | | | |
| Corn silage | 21.8 | 19.6 | 14.8 | 14.8 | 19.5 | 18.3 | 18.8 | 19.8 |
| Sorghum grain | 3.1 | 2.6 | 5.0 | 5.1 | 3.2 | 2.7 | 2.2 | 2.2 |
| Supplement | 1.0 | .9 | .9 | .9 | 1.0 | .8 | .9 | .9 |
| Total feed per lb. gain | 25.9 | 23.1 | 20.7 | 20.8 | 24.7 | 21.8 | 21.9 | 22.9 |

[1] Assay limits say samples must be within 70 to 120% of amount indicated to be "in compliance."

Table 22

Carcass Data of Heifers Full Fed Corn Silage Supplemented With MGA and Varying Levels of Sorghum Grain

| Ration per day | Corn silage Sorghum grain fed at .75% of av. body wt. Protein supplement | | Corn silage Sorghum grain fed at 1.5% of av. body wt. Protein supplement | | Corn silage Sorghum grain fed last 56 days; 1% first 28 days, 2% last 28 days Protein supplement | | Corn silage Sorghum grain fed to consumption last 28 days Protein supplement | |
|---|---|---|---|---|---|---|---|---|
| Hormone | Control | MGA | Control | MGA | Control | MGA | Control | MGA |
| Lot no. | 3 | 4 | 5 | 6 | 9 | 10 | 11 | 12 |
| Av. hot carcass wt., lb. | 513 | 520 | 537 | 551 | 519 | 538 | 521 | 537 |
| Maturity | A | A | A | A | A | A | A | A |
| Estimated kidney knob % | 2.75 | 2.65 | 2.6 | 2.7 | 2.6 | 2.6 | 2.7 | 2.5 |
| Av. fat thickness 12th rib, in. | .36 | .36 | .41 | .47 | .35 | .39 | .36 | .38 |
| Av. degree marbling | Trace + | Trace | Trace | Trace - | Trace | Trace | Trace | Trace - |
| U.S.D.A. grade | good | good | good | good | good | good | good | good |
| Av. ribeye area, sq. in. | 11.5 | 11.5 | 12.1 | 11.8 | 12.2 | 11.7 | 12.1 | 12.0 |