

supplement per head daily. It is important to consider the condition of the cattle, and feed enough supplement to keep the winter weight loss to about 15 percent of the previous fall weight. This may require feeding some grain as well as protein supplement during the winter if forage is quite deficient.

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## A Comparison of Hormones for Heifers Grazing Wheat Pasture

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### Story in Brief

This study consisted of two trials comparing different hormones with heifer calves grazing wheat pasture. In Trial I Melengestrol Acetate (MGA) and Synovex-H were compared using 72 heifers averaging 431 pounds in weight. In Trial II, 20 heifer calves weighing approximately 260 pounds were used to compare Diethylstilbestrol and Synovex-H.

In Trial I Synovex-H increased gains 16.9 percent while MGA decreased gains 17.9 percent, when compared with controls. Cattle receiving both MGA and Synovex-H gained 7.5 percent less than controls. In Trial II gains were almost identical for calves receiving Diethylstilbestrol and Synovex-H.

### Introduction

In recent years various hormones have been shown to improve performance of cattle in the feedlot. Most data indicate increases in gains of grazing cattle implanted with Diethylstilbestrol. There is only limited data available on the effects of other hormones upon grazing cattle.

This study was conducted to determine the influence of Diethylstilbestrol, Melengestrol Acetate (MGA) and Synovex-H upon gains of heifers grazing wheat pasture.

In cooperation with USDA Agri. Research Service, Animal Husbandry Research Division.

## Methods and Materials

### Trial I.

Seventy-two spring-born Hereford and Angus heifer calves were selected from the experiment station herd and divided into four equal lots of 18 based on weight and previous treatment. Lot 1 served as controls and received no hormones; lot 2 was fed 0.4 mg. MGA per head daily in a small amount of grain; lot 3 was implanted with Synovex-H (200 mg. testosterone and 20 mg. estradiol); and lot 4 received both MGA and Synovex-H. MGA was mixed with ground milo so that each pound of grain contained approximately 0.4 mg. of MGA. This mixture was fed at the rate of one pound per head daily. The two lots which received no MGA were fed one pound of grain per head daily to equalize the effect of grain feeding among all lots.

Heifers were put on pasture November 11, 1968, and weighed off March 18, 1969, for a total of 126 days on pasture. Initial and final weights were taken following an 18-hour shrink (without feed and water). All lots had free access to water and a mineral mixture composed of two parts salt and one part steamed bonemeal. The stocking rate was about 1.5 acres per heifer. The pasture was divided into four equal lots and cattle were rotated between lots once each month.

### Trial II.

Twenty lightweight Hereford and Angus heifer calves averaging 266 pounds were used to compare Diethylstilbestrol and Synovex-H. The calves were divided into two groups of 10 on the basis of weight. Lot 1 was implanted with 12 mg. of Diethylstilbestrol while Lot 2 received an implant of 20 mg. of estradiol and 200 mg. testosterone (Synovex-H).

Both groups grazed the same pasture and had no supplemental feed. Water and the mineral mix described in Trial I were available free-choice. The stocking rate in this trial was approximately two acres per head. Cattle were implanted and started on trial November 15, 1968 and final weights were taken on March 18, 1969 — a period of 122 days. Initial and final weights were taken following an 18-hour shrink.

## Results and Discussion

### Trial I.

Table 1 shows the gains of the four groups of heifers. The lot implanted with Synovex-H gained 16.9 percent more while those fed MGA gained 17.9 percent less than the control lot during the 126-day grazing period. The lot receiving both MGA and Synovex-H gained 7.5 percent less than controls.

The percentage increase in gain due to Synovex-H is similar to the improvement frequently observed in the feedlot. Feedlot studies with heifers of this weight have normally shown about an 11 percent improvement in gain when MGA was fed. The reason for the decreased performance of MGA-fed cattle in this study is not apparent.

## Trial II.

Table 2 presents the results of the study comparing the effects of Diethylstilbestrol and Synovex-H on gains of lightweight heifers grazing wheat pasture. There was essentially no difference in the gains of the two groups of heifers. It is interesting to compare the gains of both lots of heifers in this study with those in Trial I. One factor which may account for greater gains in this trial is the lighter stocking rate and considerably more available forage. Another point to consider is the difference in weight since the heifers used in this study were about 165 pounds lighter than those in Trial I.

**Table 1. Effect of MGA and Synovex-H Upon Weight Gains of Heifers Grazing Wheat Pasture<sup>1</sup>**

Lot No.	1	2	3	4 MGA + Synovex-H
Treatment	Control	MGA	Synovex-H	Synovex-H
No. of heifers	18	18	18	18
Initial wt. (lb.)	432	427	433	431
Final wt. (lb.)	565	537	589	555
Total gain (lb.)	133	110	156	124
Gain/day (lb.)	1.06	0.87	1.24	0.98
Gain index (%)	100.0	82.1	116.9	92.5

<sup>1</sup> MGA was fed at the rate of 0.4 mg./head/day mixed with ground Milo; Synovex-H (20 mg. estradiol, 200 mg. testosterone) was implanted at the base of the ear.

**Table 2. Effect of Diethylstilbestrol and Synovex-H Upon Weight Gains of Lightweight Heifers Grazing Wheat Pasture**

Lot No. Treatment	1 Diethylstilbestrol <sup>1</sup>	2 Synovex-H <sup>2</sup>
No. of heifers	10	10
Initial wt. (lb.)	262	270
Final wt. (lb.)	456	462
Total gain (lb.)	194	192
Gain/day (lb.)	1.59	1.57

<sup>1</sup> 12 mg. diethylstilbestrol implanted at the base of the ear.

<sup>2</sup> 20 mg. estradiol and 200 mg. testosterone implanted at the base of the ear.

MGA furnished by TUCO Products Company, Division of The Upjohn Company, Kalamazoo, Michigan.