# Fattening Rate and Feed Efficiency in Bullocks as Influenced by Stilbestrol and Green Feed

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In a fattening experiment of 98 days' duration, eighteen healthy but aged, debilitated bullocks of approximately same size and weight were used to study the effect of stilbestrol implantation (36 milligrams) and varying levels (3, 6 and 9 pounds) of green berseem on growth rate and feed efficiency. The bullocks in all groups were fed the same basal ration, consisting of cotton seed cake 40 parts, cane molasses 30 parts and wheat *bhoosa* 30 parts. Weekly records on feed consumption and weight gains were maintained. The results of the study indicated that diethyl stilbestrol (36 milligrams implant) did not increase the rate of gain as well as feed efficiency of old bullocks. It was further observed that an increase in the level of green feed from 3 to 9 pounds (84.9 to 254.7 milligrams carotene) per head per day, showed no significant effect on either growth rate or feed efficiency. The study revealed that fattening of old bullocks is quite feasible under local conditions, and this enterprise, if demonstrated in farming community, can give beneficial results.

## INTRODUCTION

Meat is by far the largest of all sources of animal protein. But the production of meat in Pakistan can satisfy only a fraction of the requirements (12.6 gms. per head of the total requirement of 57.4 gms. per head per day). Due to this shortage of meat, a large part of population in Pakistan suffers from protein malnutrition.

There are at present some legal restrictions against the slaughter of younger animals unless they are unfit for work (Qamar and Durrani, 1963). Therefore, old and emaciated animals remain the only source of most of the beef eaten in this country. In order to salvage such grave situation of meat shortage and to raise the dietary standards of human populace by way of supplying adequate amount of wholesome and nutritious meat, it is necessary to devise some methods of increasing the quantity and improve the quality of meat per head of existing old animals.

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The old bullocks have been reported to respond very efficiently with encouraging results when fattened on balanced and economical rations consisting of industrial and agricultural by-products like molasses, oil cakes, straws (Akram *et al.*, 1961; Ather *et al.*, 1963). The effect of implantation of stilbestrol in beef cattle had been widely studied. The rate of body weight gain and feed efficiency were reported to be significantly improved with stilbestrol treatment (Clegg and Cole, 1954). The experiment under report was undertaken at the West Pakistan Agricultural University, Lyallpur to investigate the influence of stilbestrol implantation and varying levels of green fodder on growth rate and feed efficiency of old bullocks.

## REVIEW OF LITERATURE

Diethyl stilbestrol, generally referred to as stilbestrol, is a synthetic estrogen like compound which has many of the physiological properties of the female sex hormones. Stilbestrol may be administered either by implanting pellets under the skin or by feeding in rations. The data from a typical test illustrated that oral and implanted stilbestrol was equally effective in increasing body weight gains and improving the feed efficiency (Snapp and Neumann, 1960). Clegg and Cole (1954) studied the effect of stilbestrol implants in ruminants on the rate of gain, feed utilization, weight of endocrine glands and nitrogen retention. They observed that treated steers in the feed lot or on pasture supplemented with concentrates made greater gains than controls. Hale *et al.* (1959) in an experiment with dry lot lambs observed increased rate of growth, when they were implanted with 3 milligrams stilbestrol.

Ather *et al.* (1961) used stilbestrol terramycin premix in fattening rations of old bullocks. They reported that there was no significant effect of feeding stilbestrol terramycin premix on either weight gain or feed efficiency. Keith *et al.* (1962) observed 5 to 11 per cent gain in liveweight of steers, when fed 10 mg. stilbestrol orally or implanted with 12 or 36 mg. pellets. Williams and Easig (1965) reported that heifers when implanted with stilbestrol showed slight improved performance in rate of growth.

Ward *et al.* (1940) investigated the influence of different levels of carotene intake on the growth and well-being of young calves. They reported that the minimum carotene requirement of growing calves was 11 micrograms per day per pound of body weight. They concluded that an increase above that level did not result in marked improvement in growth rate. A supplementation of vitamin A in cattle fattening ration did not show any response in terms of weight gain or feed consumption (Farris *et al.*, 1962). Kohlmeir and Burroughs (1964) laid out two trials with steers to study the effect of vitamin A on growth rate

and reported that higher supplemental levels of vitamin A had no additional benefit on growth and feed efficiency.

## EXPERIMENTAL PROCEDURE

Eighteen old bullocks of approximately uniform size and weight were purchased from different cattle fairs held in Lyallpur District. The animals were put on the basal ration for a preliminary period of about 10 days to let them adjust to the experimental rations and changed conditions. The animals were tested for tuberculosis and were dewormed with phenothiazine drench. The bullocks were randomly distributed into 6 groups (A to F) of 3 bullocks each. The animals in each group were fed the same basal ration consisting of cotton seed cake (40 parts), molasses (30 parts) and wheat *bhoosa* (30 parts). In addition to the basal ration, the bullocks in group D, E and F were implanted subcutaneously at the base of the ear with 36 milligrams diethyl stilbestrol pellets on the day of the start of the experiment. The animals of other groups, *viz.*, A, B and C were not implanted with stilbestrol and, thus, served as controls. In addition to the basal ration and stilbestrol treatment, animals of groups A and D, B and E and C and F received green feed (berseem) at the rate of 3, 6 and 9 pounds, respectively. The total daily ration for each bullock was divided into two feedings, approximately half of the basal ration was offered in the morning and the remaining half in the evening. The green feed was offered to the experimental bullocks at about 11.00 A.M. daily. The animals were watered thrice a day. The bullocks were weighed in the morning of the first day of experiment and subsequently on the same day of each week and at the same time. The following records were maintained during the test period of 98 days: (*a*) Initial body weight, weekly body weight and final body weight of each bullock, (*b*) Feed consumption, and (*c*) Health records.

The data were subjected to statistical analyses using analysis of covariance.

## RESULTS AND DISCUSSION

The data collected during the experiment have been summarized in Table 1.

### Weight Gain

The average daily gain in body weight per bullock in various groups ranged from 1.62 to 2.09 pounds (Table 1) during the test period. The animals of the group A, B and D showed on an average a weight gain of 1.62, 1.62 and 1.64 pounds per day, respectively, and the differences were found to be statistically non-significant. The bullocks of group C, E and F gained in weight at

the rate of 2.03, 1.97 and 2.09 pounds per day, respectively. Although the animals of the group F were the heaviest than those in other groups and showed an average weight gain of 2.09 pounds per day, the statistical analysis did not reveal any significant differences between the animals of either group.

TABLE 1. *Summary of Growth and Feed Efficiency Data.*

| Particulars | Group A | Group B | Group C | Group D | Group E | Group F |
|---|---|---|---|---|---|---|
| Number of animals | 3 | 3 | 3 | 2* | 3 | 3 |
| Days on feed | 98 | 98 | 98 | 98 | 98 | 98 |
| Average initial weight per bullock (lb.) | 668.6 | 679.3 | 662.0 | 684.0 | 718.0 | 690.0 |
| Average final weight per bullock (lb.) | 827.3 | 838.6 | 860.6 | 845.0 | 911.3 | 895.3 |
| Average total weight gain per bullock (lb.) | 158.7 | 159.3 | 198.6 | 161.0 | 193.3 | 205.3 |
| Average daily gain per bullock (lb.) | 1.62 | 1.62 | 2.03 | 1.64 | 1.97 | 2.09 |
| Total average feed consumed per bullock (lb.) | 1966.66 | 1991.00 | 2267.66 | 2081.50 | 2193.33 | 2187.00 |
| Average daily feed consumed per head (lb.) | 20.37 | 20.29 | 23.14 | 21.24 | 22.38 | 22.31 |
| Average amount of feed required per pound of weight gain (lb.) | 12.57 | 12.52 | 11.34 | 12.95 | 11.36 | 10.67 |

*One bullock died during the course of experiment.

The results, thus, indicated that varying levels of green feed and stilbestrol implantation had no effect on the growth rate in old bullocks. The findings of the experiment are in close agreement with those reported by Ather *et al.* (1961) who studied the effect of stilbestrol in fattening of old bullocks and observed non-significant differences in growth rate of the treated and untreated animals.

**Feed Efficiency**

Feed deficiency is defined as the amount of feed required per pound of body gain. The average amount of feed required per pound of body weight gain varied from 10.67 to 12.95 pounds (Table 1). The animals of group A, B

and D required on an average 12.57, 12.52 and 12.95 pounds feed per day per pound of body gain, respectively, and the difference in feed efficiency was found to be statistically non-significant. The bullocks of group C, E and F had feed efficiency of 11.34, 11.36 and 10.67 respectively. The animals of group F were most efficient (10.67 Vs 12.57, 12.52, 11.34, 12.95, 11.36) in feed utilization, but the differences in feed efficiency among the groups were statistically non-significant. The data, therefore, indicated, that varying levels of green feed and stilbestrol implantation had no effect on the feed efficiency in old bullocks. The results are in line with Ather *et al.* (1961), but do not agree with those reported by Hale *et al.* (1959) and Keith *et al.* (1962) who stated that subcutaneous implantation of stilbestrol significantly increased the rate of gain and feed efficiency in young steers and rams. This might be explained on the basis of the difference in age of the experimental animals used in different studies.

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