It should be recognized that calf weight required to result in equal TDN efficiency may not be the same as the added calf weight required to support the cost of additional TDN. These relationships depend on the cost estimates on the TDN utilized, weaning weight value and percentage calf crop which influences the pounds of calf weaned per cow.

Table 4 provides values for cow weights to the 0.74 power for use in the equation for indexing cow efficiency.

Table 4. Cow Weights$^{0.74}$

Cow Wt (lbs.)	Cow Wt.$^{0.74}$ (lbs.)	Cow Wt (lbs.)	Cow Wt.$^{0.74}$ (lbs.)
900	153.5	1350	207.2
950	159.7	1400	212.9
1000	166.1	1450	218.6
1050	172.0	1500	224.0
1100	178.1	1550	229.5
1150	184.0	1600	235.0
1200	190.0	1650	240.4
1250	195.8	1700	245.8
1300	201.5		

Summary

Twenty commercial Hereford cows were used to study the relationship between cow size and energy requirements. An equation is presented for predicting the annual energy requirement of cows of different weights. A formula for indexing cow efficiency is proposed.

The Influence of Stilbestrol Implants on the Performance of Calves on Wheat Pasture or Sorghum Silage

S. A. Ewing, Gale Thompson and Robert Renbarger

The influence of stilbestrol on the performance and efficiency of finishing cattle is well recognized. In addition, several tests have shown gain stimulation in stocker cattle grazing good improved pastures. Little information is available, however, as to the gain stimulation that might be expected in calves grazing wheat pasture. Since this type of forage program is of great importance to Oklahoma it was deemed desirable to test the influence of stilbestrol implants on calves grazing this type of pasture or consuming other roughages in a stocker program.

Procedure

The test involved forty head of weaner heifer calves weighing approximately 470 lbs. Due to a shortage of wheat pasture the original experimental plan was changed so that one half of the heifers were maintained on wheat pasture and one half on sorghum silage. One half of each of these groups were allotted to receive supplemental energy feed in the form of a mixed ration consisting of 77 percent ground milo, 8 percent molasses and 15 percent chopped alfalfa hay. This plan resulted in four major treatment groups as follows.

1. Sorghum silage
2. Sorghum silage + Supplemental energy feed
3. Wheat pasture
4. Wheat pasture + Supplemental energy feed

Within each major treatment group one half of the calves were selected at random to receive a 12 milligram stilbestrol implant at the beginning of the test. Initial and final weights were determined after a 12 hour shrink without feed and water. Since wheat pasture was in short supply the stocking rate this particular year was approximately 4.8 acres per head which is considerably below the normal expected carrying capacity in the area used in these studies.

Results

The average responses to stilbestrol and supplemental energy feed for calves consuming silage or wheat pasture as the major source of roughage are summarized in Table 1. The total gain advantage, during the 88 day test period, for supplemental energy feed was 70 lbs.

The average total gain response from stilbestrol implants during the 88 day test, among all major treatment groups, was 23 pounds or an increase in daily gain of 0.26 lbs. daily. The average daily gain for all implanted cattle was 2.10 pounds as compared with 1.84 for the unimplanted controls. The percentage gain response associated with stilbestrol treatment was 14.1 percent.

Table 1. Response of Stocker Heifer Calves to Stilbestrol Implants

	No supplemental energy feed		Supplemental energy feed[1]	
	Control	Implant	Control	Implant
No. of heifers	10	10	10	10
Initial wt. (12-8-66), lbs.	481	463	473	477
Final wt. (3-10-67), lbs.	609	611	669	698
Total gain (88 days), lbs.	128	148	196	221
Gain advantage over controls, lbs.		20		25
Daily gain, lbs.	1.45	1.69	2.23	2.51
Daily gain advantage over controls, lbs.		.24		.28

[1] Calves had access to supplemental energy feed consisting of 77 percent ground milo, 8 percent molasses and 15 percent chopped alfalfa hay.

Table 2 summarizes the response to stilbestrol within the four major treatment groups. Faster gains were associated with stilbestrol treatment in three of the four groups. The reason for failure to observe a response to stilbestrol in the group of cattle on wheat pasture with supplemental grain is not clear, however, sample size within single major treatment groups is small. The low rate of gain in one stilbestrol treated animal in this particular treatment group had a marked influence on the results. Other than the low rate of gain there was no apparent reason for excluding the data collected on this animal, therefore, these observations remain in the data as summarized.

Table 2. Response of Stocker Heifer Calves to Stilbestrol Implants

	Sorghum Silage + Protein Supplement[1]	Sorghum Silage + Supplemental Ration[2]	Wheat Pasture	Wheat Pasture + Supplemental Ration[3]
No. of heifers	10	10	10	10
Initial wt. (12-8-66), lbs.	472	474	471	477
Final wt. (3-10-67), lbs.	553	667	667	701
Total gain (88 days), lbs.	81	193	196	224
Daily gain, lbs.	.92	2.19	2.22	2.54
Daily gain:				
Controls	.87	1.87	2.03	2.58
Stilbestrol implant[4]	.95	2.50	2.42	2.51
Daily supplemental feeds[1-3]				
Mixed feed	---	9.64	---	9.34
Cottonseed meal	1.50	1.00	---	---
Mineral & salt	Free Choice	Free Choice	Free Choice	Free Choice

[1] 1.5 lbs. cottonseed meal daily.

[2] Supplemental ration consisting of 77 percent ground milo, 8 percent molasses and 15 percent chopped alfalfa hay fed at a level consumed by cattle on wheat pasture when provided free choice plus 1.0 lb. cottonseed meal daily as supplemental protein.

[3] Supplemental ration described in footnote 2 provided free choice. No additional protein supplement was fed.

[4] Implanted with 12 milligram Stimplant (Pfizer).

Summary

Forty weaner Hereford heifer calves were utilized to evaluate the response of heifers consuming sorghum silage or wheat pasture to 12 milligram stilbestrol implants. An additional 23 pounds of gain during the 88 day experimental period was associated with stilbestrol implantation. The improvement in daily rate of gain was 0.26 pounds daily or 14 percent. Based on this data it would appear that implantation could be profitable when the feed supply available is likely to produce 0.90 pounds or more daily gain.