The accumulative mean data showed that steers fed daily outgained either those fed every other day or every fourth day. Gain data between every other and every fourth day was variable with little differences between the two.

All supplemented groups of animals which were started on May 26 outgained the control group. However, of the animals which were started on supplements July 17, only the daily-fed group gained more than the control group. The data suggests that in order to achieve maximum gain, supplementation should begin early in the summer.

Table 4 shows the gain data for the first 58 days and the last 38 days. All supplemented animals, which essentially would be only the animals beginning on May 26, outgained the control animals during the first 58 days. However, this difference was not maintained throughout the final 38 days. The gains over the last 38 days were similar between the two groups with little difference between those starting on May 26 and those starting on July 17. Again in the second period, animals receiving daily supplements gained more than those supplemented either every other or every fourth day during this period. Supplementation in the first 58 days had little or no effect on gains in the last 38 days.

CONCLUSIONS

The results of this trial would indicate that weight gains of yearling steers supplemented with energy and nitrogen daily while grazing crested wheatgrass would be higher than those receiving supplements less frequently. These data indicate that a method of feeding range supplements must be devised so that animals receive their supplements daily. This can be accomplished either through hand-feeding of the animals, a salt control mix which will limit their daily supplement intake, block feeding which also will limit their supplement intake, or some other possible mechanism.

MANAGEMENT OF CATTLE GRAZING NATIVE FLOOD-MEADOWS

R. J. Raleigh, H. A. Turner, and Larry Foster

Previous work at the Squaw Butte Station and other range stations in the western area indicate a decline in quality of range forage from the beginning of the grazing season, in mid or late April on through the grazing season. Forage quality on the native flood-meadow, follows this same trend. Although we have little cattle gain data from these meadows the nutrient value of these forages would indicate that we would get much the same response as from range forage. Protein content of the flood-meadow forage is high in early spring dropping down to about eight percent by the early part of July, after this time the protein content drops by about one percent per week. Digestible energy values follow this same trend.

Range supplementation studies conducted at the Squaw Butte Station have indicated that we can expect an economic return from supplements starting in early spring with an energy supplement and then adding both protein and energy once both factors become limiting. The supplement needs to supply the difference between that provided by the forage and the requirement for the desired gain of the animal. Both protein and energy need to be provided beginning in late June or early July. Supplmenting with either nutrient alone after this time gives a limited gain response.

Stilbestrol implants have consistantly improved steer gains by 10 to 15 percent on any feed regimen as long as feed is adequate to support reasonable gains. Also, internal parasite control can substantially increase net income under certain conditions providing a parasite problem exists. Little research has been conducted on internal parasite control in this area.

With the above objectives in mind this study was initiated to determine the value, the type, and the method of supplementing yearlings grazing the native flood-meadows, to determine if stilbestrol implants would increase the daily gain of yearling steers grazing these meadows, and also, to determine if internal parasite control is economically feasible under these conditions.

EXPERIMENTAL PROCEDURE

The study was conducted on the Bell A Ranch of the Bell A Grazing Association, using four fenced native flood-meadow pastures and 160 steers from the cooperators on the ranch. The pastures were selected to be as nearly uniform as possible, each one with a carrying capacity of 40 steers grazing from May 1 to September 15. The steers came from three separate owners. Ownership was stratified across all experimental treatments.

The experimental design was a 2 x 2 x 2 factorial to compare supplement versus no supplement, stilbestrol versus no stilbestrol, and internal parasite control versus no internal parasite control, with two replications (Table 1). Steers in two of the pastures were supplemented while steers in the other two pastures remained unsupplemented. One-half of the steers in each pasture received a 12 mg. stilbestrol implant at the beginning of the trial. One-half of the stilbestrol implanted steers and one-half of the steers without implants were treated for internal parasites with a thiabendazole bolus at the start of the trial.

The animals were individually identified and had free access to water, salt, and a salt-bonemeal mixture at all times. They were weighed, initially, and every four weeks thereafter during the trial. Weighing conditions were the same at each weighing with cattle gathered from all pastures and put into a common pen each morning before weighing, they were then weighed at random at which time they were cut into their respective pastures.

Supplements fed were calculated to provide for 2.25 pounds daily gain throughout the grazing season. The feed schedule is shown in Table 2. All pastures were cut and rake-bunched on July 13 and the supplement level remained constant from that date to the end of the trial.

Table 1. Experimental design 1/

Treatment	No internal parasite control	Internal parasite control	Total animals
No supplement			
No stilbestrol	10	10	20
Stilbestrol	10	10	20
Supplemented			
No stilbestrol	10	10	20
Stilbestrol	10	10	20
Total animals	40	40	80

Table 2. Feeding schedule showing feed per head per day

Date	Barley	CSM	Biuret	Sulphur
	grams	grams	grams	grams
Turnout - 5/30	454	---	--	--
5/31 - 6/6	341	---	--	--
6/7 - 6/13	227	---	--	--
6/14 - 6/20	190	50	7	13
6/21 - 6/27	227	115	14	13
6/28 - 7/4	290	150	20	13
7/5 - 7/11	370	180	25	12
7/12 - 8/17 1/	540	215	30	12

1/ The pastures were cut and rake-bunched on 7/13 with supplement levels being maintained at this level to termination date.

RESULTS AND DISCUSSION

Supplemented steers gained 2.14 pounds per day as compared to 2.02 for the nonsupplemented steers (Table 3). This response to supplementation was not as great as expected or get from our range supplement program. The supplement levels fed were based on data obtained from our range supplementation program at Squaw Butte. However, crude protein values of the meadow forage indicated a higher quality forage than we have on our ranges and also higher than we estimated when we set up the supplementation levels (Table 4). This indicates a need for additional work describing the nutritional quality of these meadow forages at various times during the grazing season.

Gain responses from supplementation were about as expected from the beginning of the trial to June 23 and crude protein values of the Bell A forage were similar to values on which the supplement was based during this time. However, through the latter part of June and up to the cutting date of July 13 the Bell A forage ran substantially higher in quality than expected.

Table 3. Gain data over 88 day trial

Treatment	No. of animals 1/	Initial wt. 5/22	ADG 2/ 6/23	7/21	8/18
		(lb.)	(lb.)	(lb.)	(lb.)
Control	20	519	2.38	2.07	1.92
Supplement	20	537	2.84	2.25	2.15
Supplement + Stilbestrol	20	541	2.84	2.42	2.27
Supplement + ThiaB.	20	546	2.54	2.07	1.95
Stilbestrol	17	550	2.91	2.38	2.15
Stilbestrol + ThiaB.	18	523	2.63	2.33	2.17
ThioB.	19	530	2.44	2.07	1.90
Suppl. + Stilb. + ThiaB.	18	543	2.88	2.42	2.22
Supplement	78	542	2.75	2.28	2.14
No supplement	74	530	2.56	2.20	2.02
Stilbestrol	73	539	2.81	2.38	2.20
No stilbestrol	79	533	2.53	2.12	1.98
Thiabendazole	75	536	2.59	2.22	2.06
No thiabendazole	77	536	2.75	2.28	2.13

1/ Eight animals got out of the experimental pastures and had to be excluded from the data.

2/ Accumulative ADG from the initial weight to the date shown.

Table 4. Forage quality

Date	Crude protein Range forage 1/	Bell A meadow 2/
	%	%
May 29	12.0	11.5
June 5	11.1	12.1
June 12	10.2	11.2
June 19	9.4	9.9
June 26	8.6	9.9
July 3	8.0	9.3
July 10	7.4	9.2
July 16	6.9	9.1

1/ Supplement level was based on forage values over a period of 10 years on the Squaw Butte range and yearling response to various supplements.

2/ Forage was sampled weekly during the trial up to cutting and bunching of the meadows on July 13.

This resulted in higher gains from steers not receiving a supplement than would normally be expected and possibly may have effected the gains of the supplemented steers since excess protein was fed in relation to energy. These results further point out the need for a proper balance of nutrients since if either protein or energy is out of balance gains can be effected.

The stilbestrol implants boosted gains by ten percent with implanted steers gaining 2.20 pounds per day as compared to 1.98 for the steers not implanted. The combination of supplements with the implant, produced the best gain of any of the combined treatments.

Gains were depressed among the steers receiving the internal parasite control. Daily gain of steers receiving the bolus was 2.06 pounds as compared to 2.13 for the control steers. Microscopic examination of feces from steers with and without the internal parasite treatment indicated a very low infestation of either stomach or lung worms in any of the steers.

Supplemented steers returned $2.40 more per head than the controlled steers. Of the individual treatments, stilbestrol implants made the greatest return with these steers returning $6.00 per head over the nonimplanted steers. The most profitable of the single treatments being the stilbestrol implant. Thiabendazole, the internal parasite treatment, reduced returns by $3.00 per head over steers not receiving the parasite control. This was mainly due to the cost of the thiabendazole capsule rather than the reduced rate of gain.

CONCLUSIONS

Results from this trial indicate that we can not afford to ignore the use of stilbestrol implants on pastures such as these. Although supplement alone and in combination with stilbestrol increased the rate of gain, the implant alone was the most profitable treatment. Supplements did not give the expected rate of gain, however, we can not conclude that supplementation will not pay on this type forage. It does point out the need, however, of learning more about the quality of these forages and tailoring a supplementation program to meet these needs.

Results from this study indicate no economic advantage from internal parasite control. However, periodic fecal sampling and worm counts should be continued as cattle numbers become more congested on these meadows to see if we have year to year variations in parasite infestation or possibly an increase with the intensification of livestock management.