1:15 p.m.—Beef Making in the San Joaquin Valley—

Harvey McDougal, Feedlot Operator, Collinsville, California

Utilizing Forages and Roughages in Kansas and the Southwest—Panel Members

By Cow Herds in the Flint Hills—Floyd Mills, Ranch Operator, Sedan, Kansas

By Cow Herds in Western Pastures—Mel Harper, Ranch Operator, Sitka, Kansas

By Steers from the Range—George Andrews, Ranch Operator, Kanopolis, Kansas

By Heifers from the Range—Fred Winzeler, Ranch Operator, Lamont, Kansas

In Feedlots—Harvey McDougal, California, and Girdner Crofoot, Feedlot Operator, Cottonwood Falls, Kansas

Selling Cattle Fed Bulky vs. Highly Concentrated Rations—Willard Olander, National Livestock Company, Kansas City Market

Buying Cattle Fed Bulky vs. Concentrated Rations—Russell Halberg, Armour and Company, St. Joseph, Missouri

Questions and Discussion

3:00 p.m.—Adjournment

6:30 p.m.—Kansas State Union—Banquet for visiting stockmen and ladies—Block and Bridle Club

Honoring: Henry Rogler
Bill House
James Reid (deceased)

FOR THE LADIES

Friday, May 5, 1961

6:30 p.m.—Dinner, Gillett Hotel—Kansas Cow Belles and all visiting ladies (make reservations with Mrs. C. G. Elling, 701 Elling Drive, Manhattan)

Saturday, May 6, 1961

9:30 a.m.—Coffee, Animal Industries Building—by Animal Husbandry Ladies

10:30 a.m.—Program and Demonstrations

12:00 m. —Lunch, Animal Husbandry Arena

6:30 p.m.—Block and Bridle Banquet (see general program)

COVER PHOTO: Calves used in grazing and feeding tests by the animal husbandry department being loaded at Alpine, Texas, for shipment to Kansas, October, 1960. This is the third consecutive year that calves have been purchased for the experiments from the Jeff Ranch, Fort Davis, Texas. Photo courtesy Henry Elder, manager, Texas Hereford Association, Fort Worth.

Beef Cattle

Trace-mineral Salt for Steers on an All-roughage Ration (Concrete and Shelter vs. Dirt and No Shelter) (Project 430).

M. M. McCartor, B. A. Koch, E. F. Smith, and D. Richardson

Previous data collected at this station seem to indicate that supplementary dietary trace minerals may be of value under certain feeding regimes. This trial also was designed to obtain further information on the value of shelter and concrete in feeding lots.

Experimental Procedure

The steers used in this study had been used in various pasture trials during the summer of 1960. After those trials were completed, the steers were fed an all-roughage maintenance ration until they were allotted to this study December 14, 1960.

The cattle were divided into four groups of 10 animals each as follows:

Lot 1. Plain salt (on concrete and with shelter available).
Lot 2. Trace-mineral salt (on concrete and with shelter available).
Lot 3. Trace-mineral salt (dirt lot—no shelter).
Lot 4. Plain salt (dirt lot—no shelter).

The cattle were held off feed and water for 15 hours prior to being on and off test. Throughout the wintering period silage was fed in the morning and hay, in the afternoon. All animals had free-choice access to the designated salt and also to a mixture of that salt and bonemeal. Water was always available from heated automatic waterers.

Observations

Trace mineral salt apparently had no effect on average daily gain or feed efficiency of steers being wintered on an all-roughage ration.

Table 1

Trace-mineral salt* for steers on an all-roughage ration (concrete and shelter vs. dirt and no shelter).

December 14, 1960, to March 17, 1961—93 days.

Treatment	Concrete lot + shelter		Dirt lot, no shelter	
	Plain salt	T-M salt	T-M salt	Plain salt
Number steers per lot	10	10	10	10
Av. initial wt., lbs.	714	719	736	741
Av. final wt., lbs.	849	857	846	846
Av. total gain, lbs.	135	138	110	105
Av. daily gain, lbs.	1.45	1.48	1.18	1.13
Standard error of mean	±0.11	±0.11	±0.09	±0.12
Av. daily ration, lbs.:				
Sorghum silage	26.0	26.0	26.0	26.0
Alfalfa hay	11.8	11.9	11.5	11.9
T-M salt		.027	.027	
T-M salt + bonemeal		.155	.139	
Plain salt				
Plain salt + bonemeal	.129			.118
Av. feed per cwt. gain, lbs.:				
Sorghum silage	1779	1755	2204	2298
Alfalfa hay	808	804	974	1053
Av. feed cost per cwt. gain	$11.98	11.62	14.61	15.56

* Commercial trace-mineral salt containing not less than .150% manganese; .010% cobalt; .033% copper; .005% zinc; .007% iodine; .125% iron.

Steers fed on concrete and with shelter available gained significantly faster than those fed on dirt and without shelter. The average feed requirement per hundredweight gain was much higher for cattle on dirt and without shelter.

It should be pointed out that weather conditions were relatively mild and precipitation was almost zero during the time that this trial was in progress.

Cobalt Bullets or Cobalt-fortified Soybean Oil Meal for Heifers on a Finishing Ration (Project 430).

B. A. Koch, E. F. Smith, D. Richardson, and F. W. Boren

Experimental Procedure

Twenty-seven head of Hereford heifers of good to choice quality were used in this trial. They previously had been used to study various winter treatments. Treatments were as follows:

Control lot. Cracked sorghum grain and alfalfa hay fed twice a day; soybean oil meal fed once a day.

Cobalt-bullet lot. Each heifer given a cobalt bullet at beginning of the feeding period; fed the same as the control lot.

Cobalt "fed" lot. Daily allowance of supplemental cobalt carried in soybean oil meal; fed the same as the control lot.

During the first 17 days of the trial, each heifer received 10 pounds of silage per day mixed with the grain to help bring to full feed. Heifers in the cobalt "fed" lot received 0.75 mg. of supplemental cobalt per head per day in their soybean oil meal during the first 90 days. During the last 80 days, the supplemental cobalt was increased to 1.50 mgs. per head per day.

Observations

The heifers receiving cobalt bullets did not show significant improvement in average daily gain, feed efficiency, or carcass grade compared with the controls, but feed cost per hundredweight of gain was slightly lower and average carcass grade was slightly higher for the "cobalt" heifers.

Heifers receiving cobalt in their protein supplement each day gained an average of 0.3 pound more per day than controls, and feed cost per hundredweight gain was considerably lower. Average carcass grade was also considerably higher than that of the control group. Statistically, increase in average daily gain over that of the control group was highly significant.

In this particular test, the cobalt in the protein supplement apparently was more effective than that supplied by a cobalt bullet.

Table 2

Cobalt bullets or cobalt-fortified soybean oil meal for heifers on a finishing ration.

May 25, 1960, to November 11, 1960—170 days.

Treatment	Control	Cobalt bullet	Cobalt in SBOM[1]
Heifers per lot	9	9	8[2]
Av. initial wt., lbs.	637	634	636
Av. final wt., lbs.	926	926	976
Av. total gain, lbs.	289	292	340
Av. daily gain, lbs.	1.70	1.72	2.00
Standard error of mean	±0.07	±0.13	±0.05

1. Each pound of soybean oil meal contained 0.75 mg. of cobalt added as $CoSO_4 \cdot 7H_2O$ for the first 90 days. During the last 80 days each pound of soybean meal contained 1.50 mgs. of cobalt.

2. One heifer died 10-8-60 (pneumonia).

Table 2 (Continued)

Av. daily ration, lbs.:			
Sorghum grain	14.42	14.08	15.75
Soybean oil meal	1.00	1.00	1.00
Alfalfa hay	4.87	4.84	4.97
Salt	0.052	0.052	0.044
Salt and bonemeal	0.072	0.082	0.068
Av. feed per cwt. gain, lbs.:			
Sorghum grain	848.2	818.6	787.5
Soybean oil meal	58.8	58.1	50.0
Alfalfa hay	286.5	281.4	248.5
Feed cost per cwt. gain[3]	$19.31	$18.71	$17.61
Carcass grades, USDA:			
Av. choice	1	1	1
Low choice		2	2
High good	3	2	3
Av. good	4	2	2
Low good	1	2	
Av. USDA carcass grade[4]	11.56	11.78	12.25
Av. marbling score[5]	7.11	7.56	6.75

3. Feed prices listed on inside of back cover.

4. Average grade determined as follows: Av. choice, 14; low choice, 13; high good, 12; av. good, 11; low good, 10.

5. Visual marbling score: Modest, 6; small amount, 7; slight amount, 8; moderate amount, 9.

Studies on Shipping Fever and Shipping Shrink in Cattle.

F. W. Boren, H. D. Anthony, D. C. Kelley, D. L. Nelson, E. F. Smith, and S. Wearden

This is the second year in which an attempt was made to determine some basic facts related to shipping fever and shipping shrink in weaned stocker calves.

As in the previous years, the calves used in this study were from Jeff Ranch, Fort Davis, Texas. They were gathered early October 21, 1960, weaned from the cows, loaded into trucks, and transported 50 miles to loading pens in Alpine, Texas.

Fifty head of heifer calves were randomly selected from a group of 85 heifers. They were then randomly assigned to two groups as follows: (1) Control calves injected intramuscularly with sterile saline; (2) each calf injected with 2.5 cc of a commercial tranquilizer which contained 50 mgs. of ethylisobutrazine (2-ethyl - 3-dimethyl lamino - 2-propyl)- 10 phenothiazine hydrochloride per cc.

The two groups of calves were weighed, combined, and loaded into one cattle car and shipped to Manhattan, Kansas. On arrival they were separated into two groups, irrespective of treatment, and placed in two lots. Subsequently, seven additional examinations, including temperature, two nasal swabs, blood samples, and body weights, were made for each animal. All calves were observed daily for symptoms of shipping fever.

Observations

The transit shrink for four carloads of stocker calves is shown in Table 3. Shrink varied from 5 to 9% for the calves in cars 1, 2, and 3. Car 4 contained the experimental group of calves. The average shrink of these calves was 6%, with the tranquilized calves shrinking 5% and the control calves 7%. All the calves in the shipment, 195 head, received the same transit treatment. The difference in shrink is not significant.

Shipping fever did not occur in any of the calves during the experiment. However, symptoms of respiratory complexes did occur in approximately the same number in both the treated and control groups. These were treated with injections of penicillin and streptomycin, with a high degree of success.