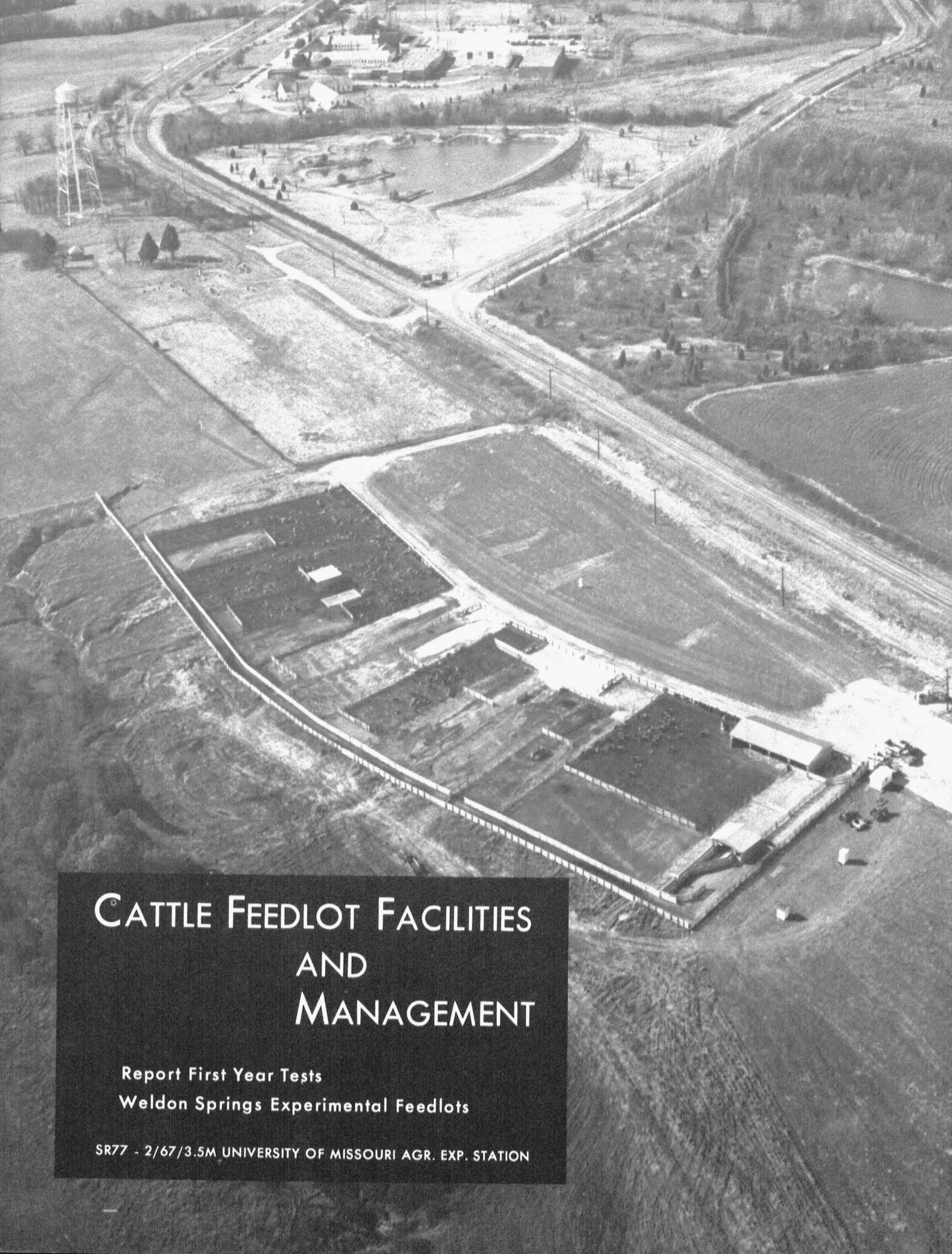
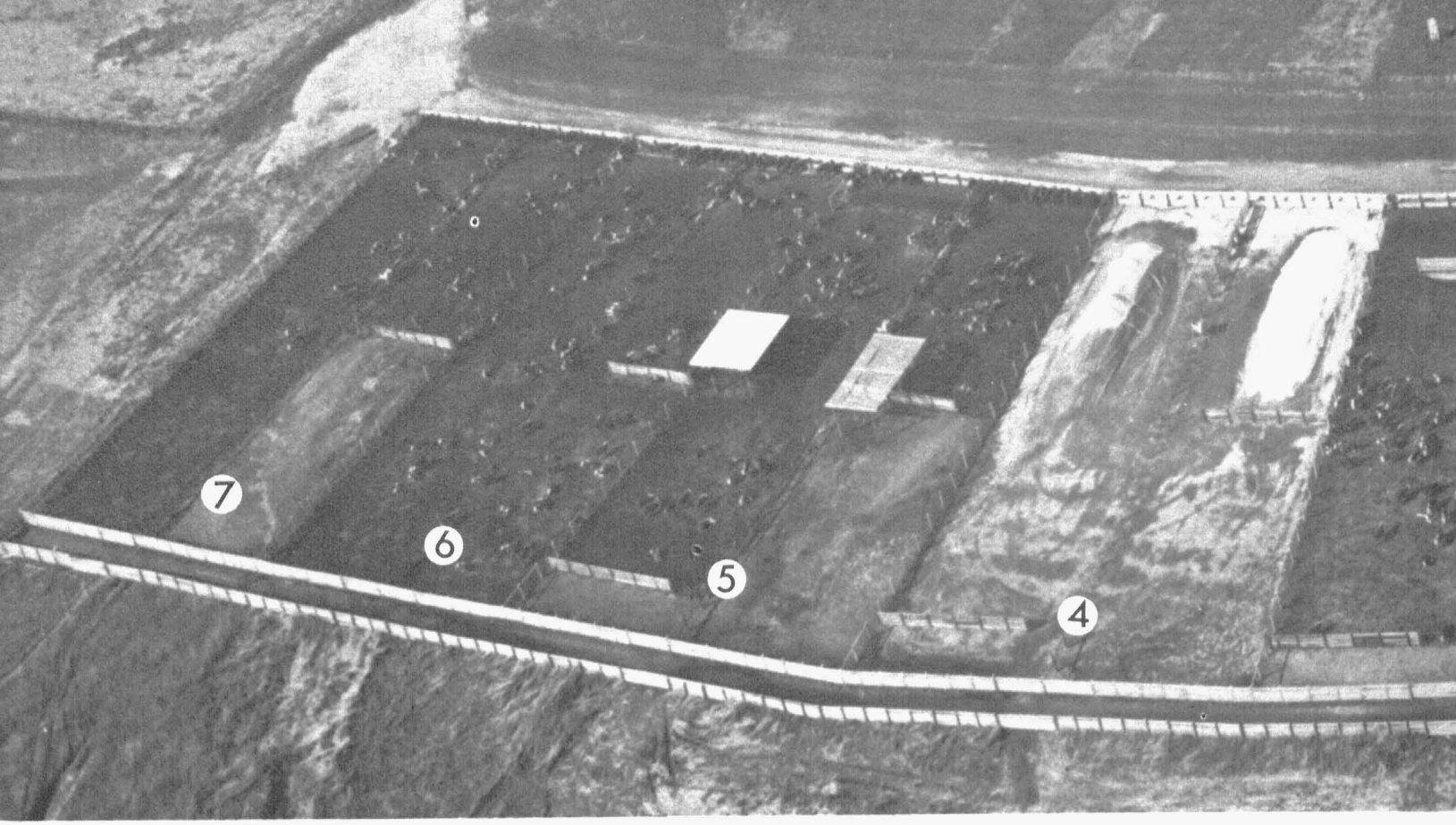


CATTLE FEEDLOT FACILITIES AND MANAGEMENT

Report First Year Tests
Weldon Springs Experimental Feedlots

SR77 - 2/67/3.5M UNIVERSITY OF MISSOURI AGR. EXP. STATION



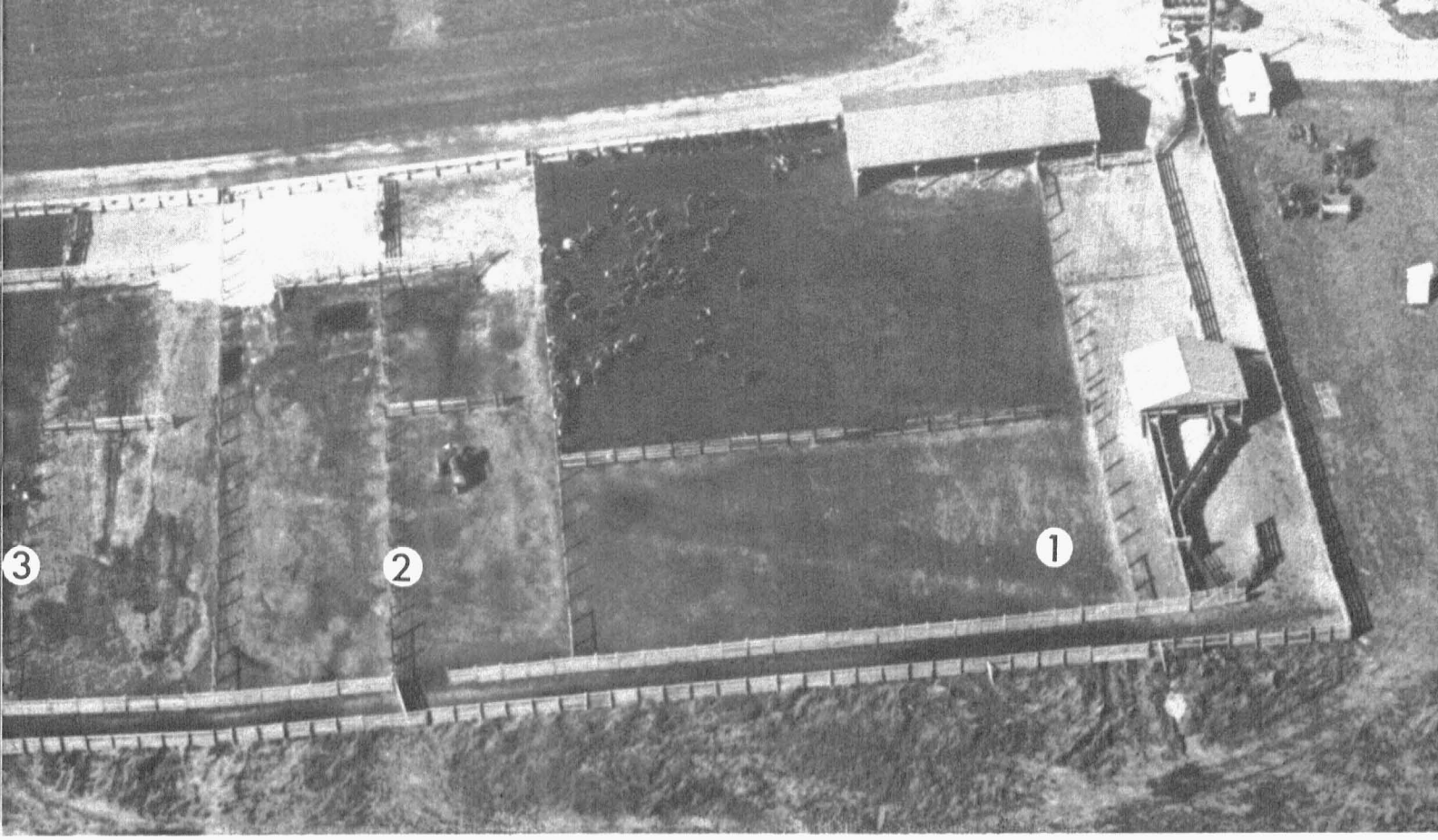
CATTLE FEEDLOT FACILITIES AND

A Progress Report on the First Test at the University's Weldon Springs Experimental Feedlots.

The primary objective of this study was to determine the effects of facilities upon the performance of cattle grown and then finished under a good system of management. All lots were fed the same ration and handled as near alike as possible so that differences in performance would reflect the differences in facilities rather than other factors.

There were seven lots. Two of these were subdivided to permit duplication. Each of the seven lots differed from the other six in the amount and kind of protection from the weather and lot conditions caused by the weather; mud versus concrete, for example.

This report is the first one on this project. Each year, new observations will be made. Thus several years' work will be necessary before a complete list of general conclusions can be reached.



Weldon Springs experimental feed lots. See next page for description of lots.

MANAGEMENT STUDY

By Albert J. Dyer, *Dept. of Animal Husbandry*
Harold V. Walton, *Dept. of Agricultural Engineering*
Robert Finley, *Dept. of Agricultural Economics*

The findings reported here apply only to the conditions that existed during the 1965-66 period. This was one of the best winters to feed cattle, weatherwise, and the feeding results were excellent. From a construction standpoint, however, about the worst possible conditions existed for digging and tamping dirt. The soil was dry and hard. Posthole digging and tamping costs were maximum. In another, more nearly normal, year the costs would have been lower. These wide variations should be remembered when the results are studied.

Drawings on the following two pages show how the lots differed as to the types of facilities provided. Main features of each lot are listed below the drawing, along with a cost summary and highlights of cattle performance during the first test. The remainder of the report gives a more detailed account of results of the first year's feeding trials.

Highlights of First Year's Tests

LOT #1 - DISTINCTIVE FEATURES

1. 30' x 48' Clear Span Shed
2. 12' Concrete Apron Along Feed Bunk
3. 15' Concrete Apron Along Front of Shed with 3' Extending into Interior
4. 10' Concrete Apron Connecting Feed Bunk Apron with Shed Apron

MATERIALS & EQUIPMENT

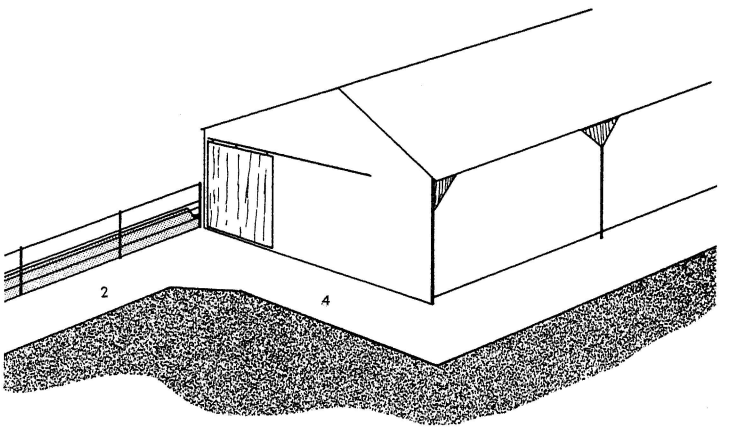
	Costs
Fencing	$ 359
Feed bunks & concrete area	852
Water system	231
Equipment charge	103
Shed	1271
Total	$2816

LABOR

	Hours
Fencing	307
Concrete & bunks	141
Site preparation	30
Water installation	43
Other	12
Shed Construction	370
Total	903

CATTLE PERFORMANCE

	Pounds
Daily Gain	2.31
Feed/100 pounds gain	
Corn Silage	852.9
Corn and Cob Meal	493.3
Protein, Mineral and Vitamin	88.3



LOT #2 - DISTINCTIVE FEATURES

1. Cattle Confined to 36' Width
2. 12' Concrete Apron Along Feed Bunk
3. 24' Wide Limestone Area
4. Manure Storage Pit

MATERIALS & EQUIPMENT

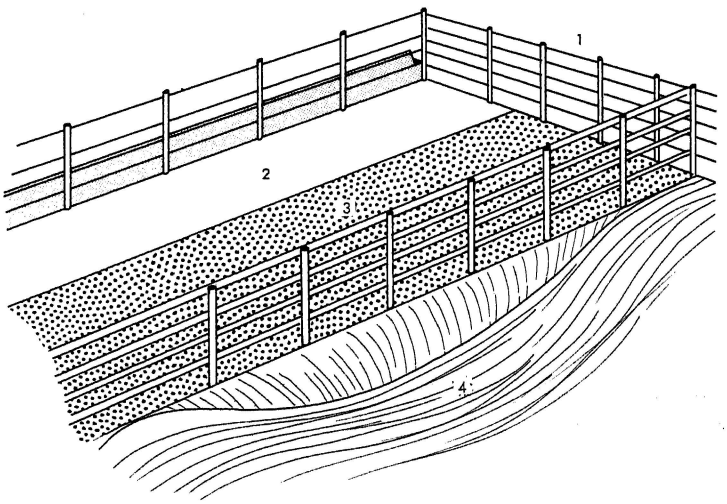
	Costs
Fencing	$ 412
Feed bunk & concrete area	539
Water system	231
Equipment charge	103
Rock & lime	26
Total	$1311

LABOR

	Hours
Fencing	254
Concrete & bunks	91
Site preparation	41
Water installation	43
Others	12
Total	441

CATTLE PERFORMANCE

	(A) Pounds	(B) Pounds
Daily Gain	2.28	2.15
Feed/100 pounds gain		
Corn Silage	886.7	929.2
Corn & Cob Meal	488.8	513.4
Protein, Mineral and Vitamin	89.0	93.8



LOT #3 - DISTINCTIVE FEATURES

1. Cattle Confined to 27' Width
2. 12' Concrete Apron Along Feed Bunk
3. 15' Concrete Slab with 3/4'' per Ft. Slope
4. Manure Storage Pit

MATERIALS & EQUIPMENT

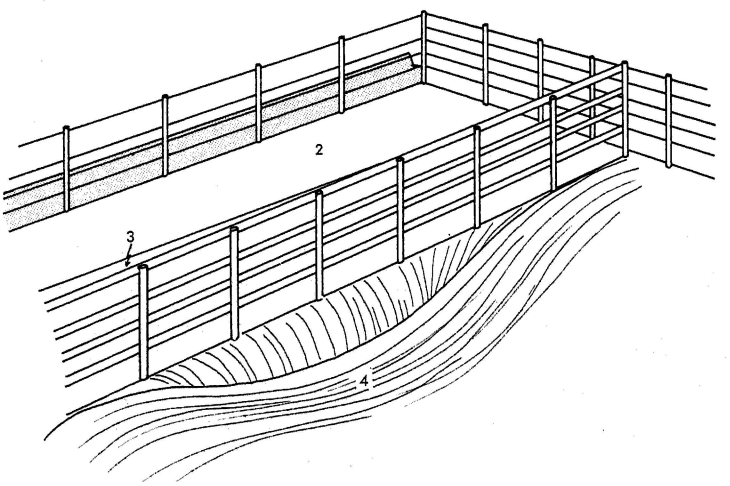
	Costs
Fencing	$ 459
Feed bunk & concrete area	839
Water system	231
Equipment charge	103
Total	$1632

LABOR

	Hours
Fencing	277
Concrete & bunks	139
Site preparation	41
Water installation	43
Others	12
Total	512

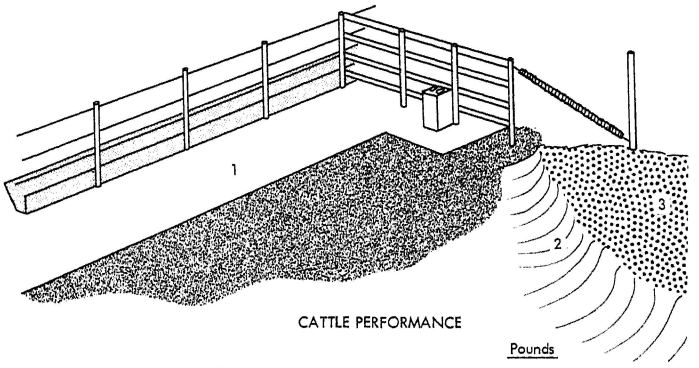
CATTLE PERFORMANCE

	(A) Pounds	(B) Pounds
Daily Gain	2.22	2.14
Feed/100 pounds gain		
Corn Silage	912.6	936.4
Corn & Cob Meal	514.2	479.4
Protein, Mineral and Vitamin	92.1	94.8



LOT # 4 - DISTINCTIVE FEATURES

1. 12' Concrete Apron Along Bunk
2. 30' x 42' Mound
3. Top 24' Width of Mound Covered with Limestone



MATERIALS & EQUIPMENT

	Costs
Fencing	$ 383
Feed Bunk & concrete area	584
Water system	231
Equipment charge	103
Lime (for mound)	81
Total	$1382

LABOR

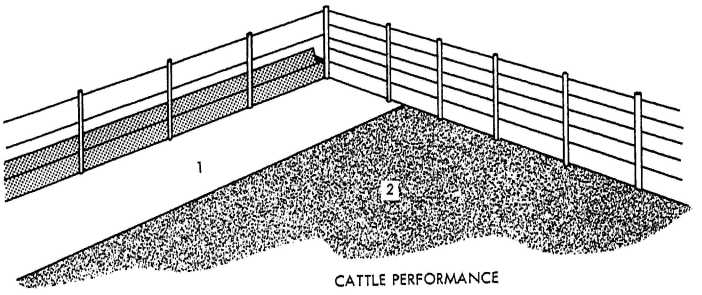
	Hours
Fencing	283
Concrete & bunks	91
Site preparation	53
Water installation	43
Others	12
Total	482

CATTLE PERFORMANCE

	Pounds
Daily Gain	2.26
Feed/100 pounds gain	
Corn Silage	901.9
Corn & Cob Meal	504.6
Protein, Mineral and Vitamin	91.3

LOT # 5 - DISTINCTIVE FEATURES

1. 12' Concrete Apron Along Bunk
2. Dirt Lot
3. Sun Shades



MATERIALS & EQUIPMENT

	Costs
Fencing	$ 376
Feed bunk & concrete area	584
Water system	231
Equipment charge	103
Total	$1294

LABOR

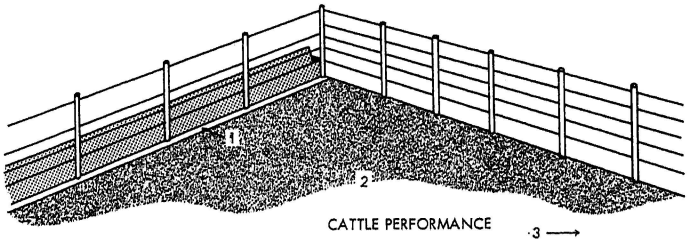
	Hours
Fencing	279
Concrete & bunks	91
Site preparation	30
Water installation	43
Other	12
Total	455

CATTLE PERFORMANCE

	Pounds
Daily Gain	2.29
Feed/100 pounds gain	
Corn Silage	880.3
Corn & Cob Meal	500.6
Protein, Mineral and Vitamin	89.4

LOT # 6 - DISTINCTIVE FEATURES

1. 2' Concrete Apron Along Bunk
2. Dirt Lot
3. Pasture Access



MATERIALS & EQUIPMENT

	Costs
Fencing	$ 345
Feed bunk & concrete area	392
Water system	231
Equipment charge	103
Total	$1071

LABOR

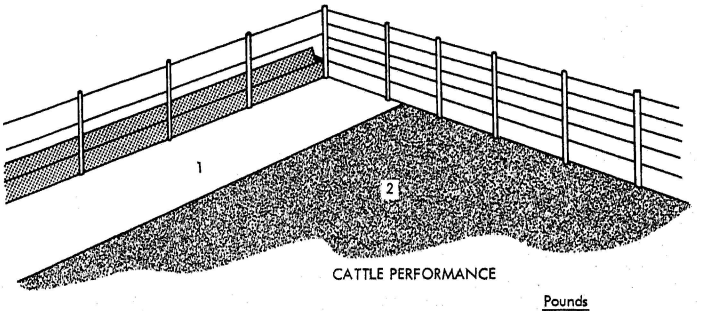
	Hours
Fencing	254
Concrete & bunks	55
Site preparation	30
Water installation	43
Other	12
Total	394

CATTLE PERFORMANCE

	Pounds
Daily Gain	2.27
Feed/100 pounds gain	
Corn Silage	892.5
Corn & Cob Meal	501.0
Protein, Mineral and Vitamin	90.5

LOT # 7 - DISTINCTIVE FEATURES

1. 12' Concrete Apron Along Bunk
2. Dirt Lot
3. Sun Shades
4. Pasture Access



MATERIALS & EQUIPMENT

	Costs
Fencing	$ 332
Feed bunks & concrete area	584
Water System	231
Equipment charge	103
Total	$1250

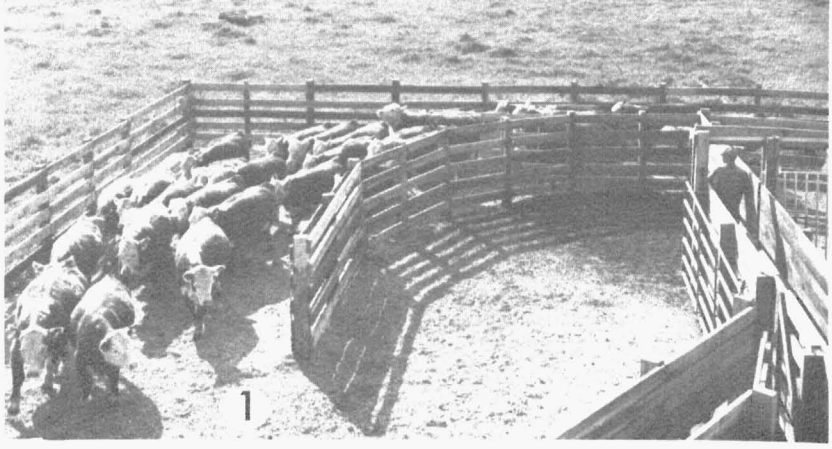
LABOR

	Hours
Fencing	254
Concrete & bunks	91
Site preparation	30
Water installation	43
Other	12
Total	430

CATTLE PERFORMANCE

	Pounds
Daily Gain	2.16
Feed/100 pounds gain	
Corn Silage	939.4
Corn & Cob Meal	525.7
Protein, Mineral and Vitamin	95.0

Handling of the Cattle



Hereford steer calves of good and choice grade were purchased for this experiment from the Cato-Gage Ranch, Marathon, Texas. This location is approximately 1,195 miles from the feeding facility. The cattle seemed to have more uniformity in quality than in size. Some were extremely wild and never did change. They were delivered to the facility October 29, 1965.

Treatment Upon Arrival

Calves were confined for three days in dry lot and fed dry roughage. On the fourth day they were turned into fields to graze corn stalks, fence rows and meadow aftermath. In November they were fed some corn silage in addition to the other forages. Mineral was provided. The areas grazed provided natural protection and this and weather conditions were ideal for the health of the cattle.

Sickness

There was no sickness among the cattle until January. Then two cattle died from urinary calculi in spite of treatment and a third calf died from listeriosis in March. Death loss was about 1.2% or much below the usual average of approximately 3%.

Identifying and Weighing

Cattle were ear tagged on February 15 and weighed individually that day and on February 17. Metal ear tags were used. Final weights for the growing period were obtained on May 9 and 11 and for the finishing period on October 1 and 3. Individual weights were taken throughout the test at 28-day intervals.

Allocation to Lots

Cattle were assigned at random to their lots. The difference in average weight between the high and low lot was 11.0 pounds, with the range from 510 pounds to 521 pounds.

Winter Feeding

Cattle were full fed a growing ration once a day from February to May.

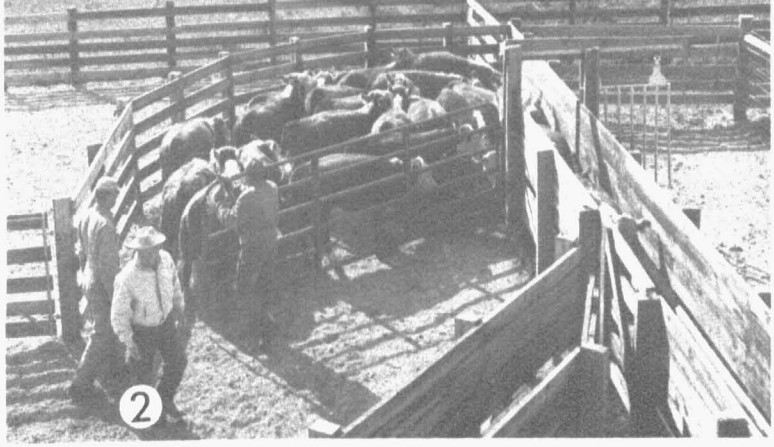
The ration fed in winter consisted of corn silage, full fed, and approximately two pounds soybean meal per head per day and mineral. The mineral mix consisted of equal parts by weight of iodized salt, bone meal, and feeding limestone; this was mixed with the corn silage and protein supplement and fed in concrete feed bunks.

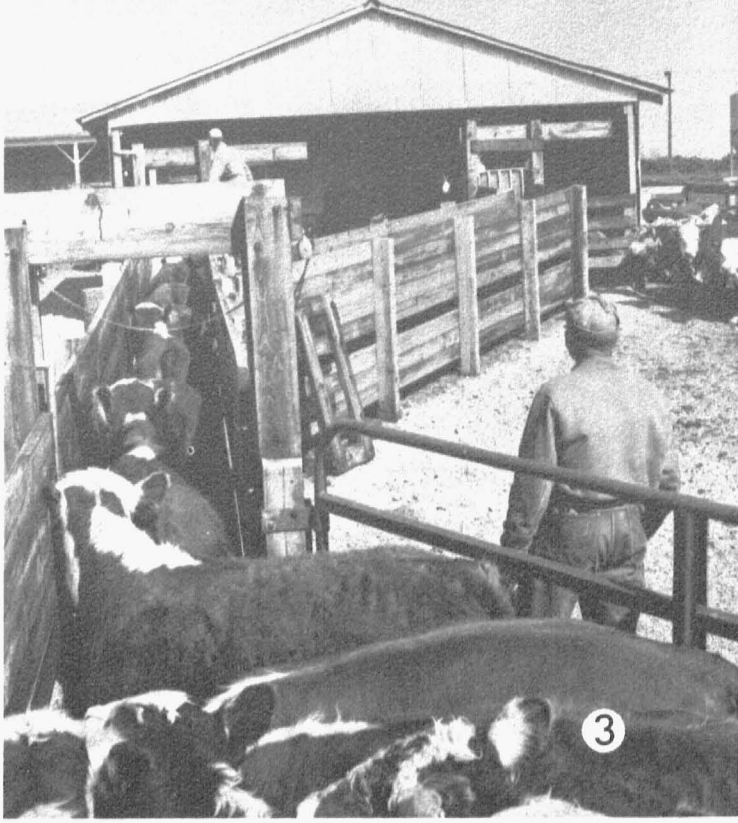
Finishing Ration

The finishing ration was fed once a day from May to October. The ration consisted of ear corn, processed with a roller mill, and a protein supplement[1] of the following composition:

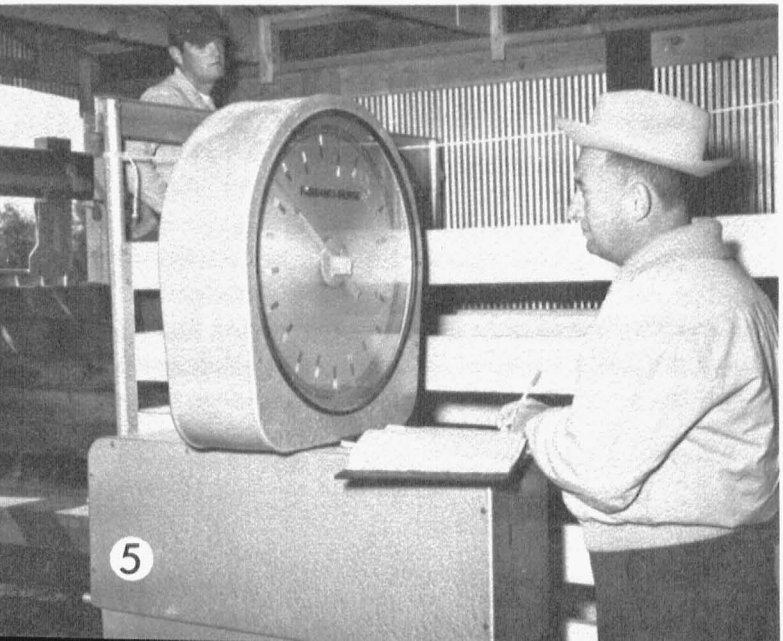
25% ground shelled corn
50% soybean oil meal
25% of a mixture containing
- (a) Urea 28.3%
- (b) Limestone 32.65%
- (c) Dicalcium Phosphate 13.06%
- (d) Trace Mineral Salt 25.03%
- (e) Vitamin A 0.96%

[1]The protein supplement was pelleted by Ralston Purina Company according to the formula above.





Pictures 1 to 6 show steps in the weighing process using the working coral that appears at right in the aerial photo on pages 2 and 3. Cattle were weighed individually every 28 days.



Precast concrete feed bunks were set in position with a wench truck.

General Feeding Plan

All cattle were fed alike, being given the same ration, according to appetite. The amount to feed daily was determined by the amount of feed refused or cleaned up the preceding day. Some feed was always before the cattle but the refuse was relatively the same in all lots.

A batch mixer with electronic load cells was used to weigh, mix and deliver feed to the bunks. The total amount to be fed daily to all lots was mixed as a single batch when possible. Weighing feed electronically was new and its accuracy was checked against a conventional scale. The figures agreed.

Another important question had to be answered: Does the batch mixer maintain a uniform mix throughout delivery? There were nine different daily weighings of feed, one for each lot. Obviously, if the consistency of the feed mixture was not maintained throughout the entire batch, the feeding trial would not be a fair one; differences among the lots in performance could then be due to differences in the ration, instead of differences in facilities.

The uniformity of the mix was determined for the growing and finishing rations. The analyses of the two samples of feed as delivered to each lot are included in the Appendix. Based on these analyses the consistency of the mix was very satisfactory. One exception was that the batch mixer did not mix small amounts of corn silage with a finishing ration as well as desired.

The end of the growing period was the beginning of the finishing period. Corn silage in ever decreasing amounts was fed with ever increasing amounts of the finishing ration until the corn silage was discontinued and the cattle were on a full feed of the finishing ration.

Quality of corn silage could not be maintained —it spoiled because the total amount removed daily (1200 pounds) from the trench silo was not great enough. The method of removing silage from the trench silo was ideal and the silo was of excellent construction.

Feedlot and Equipment Costs

Material and equipment costs are presented on pages 4 and 5. Costs ranged from a high of $2816 for lot 1 to a low of $1071 for lot 6. Lot 3 was partially paved and represented the second most costly lot. For lots 2, 3, 4, 5, and 7 costs were very similar with a difference of only $132 in material cost.

Since labor costs are likely to vary widely, the labor data are presented in terms of hours rather than

monetary value. The number of hours of construction labor per lot follows the same pattern as the material and equipment cost with lot 1 highest and lot 6 lowest.

Material in most cases was charged at retail prices. In a few instances, however, certain surplus materials were used at cost below retail. However, the materials cost should approximate that which a farmer would pay.

An over-all heavy equipment charge was assessed equally to the seven lots *plus* the work area.

It should be noted that the extremely dry conditions in the fall of 1965 made one of the major jobs, post-hole drilling, particularly difficult. Under normal conditions, 100 to 150 hours of labor per lot could possibly have been eliminated.

A mound was provided in lot 4. It is covered with limestone and connects with paved apron in front of feed bunks.

Report of First Year Test

Cattle Performance

The cattle made excellent gains on a ration consisting of exceptionally good corn silage[2] supplemented with soybean meal and minerals; the range in gains was from 2.29 to 2.6 pounds daily. Detailed figures are given for each lot in Appendix tables.

Some factors contributing to the good gains were the high quality feed, an open winter, a relatively short winter feeding period, cattle in medium flesh at the beginning, implanting with 24 milligrams of stilbestrol,[3] and good care.

Gains were made efficiently and at low cost. Ranges among lots in amounts of feed needed per 100 pounds of gain in winter were:

Corn silage—1,745 to 1,963 pounds
Soybean oil meal—68 to 76 pounds
Mineral—12 pounds

Average daily gains made by the nine groups of cattle in the finishing period ranged from 1.9 to 2.26 pounds. Differences in rate of gain were not statistically significant but they did indicate trends. Cattle in lots 2A, 2B, 3A, and 3B were confined to less area than other lots in winter. However, in summer, lots 2B and 3B were given access to more room than any other cattle. Cattle in lots 2A and 3A remained entirely on hard surface—concrete and limestone. They

Note contrast between Lot 3 (above) and Lot 4 with the mound. Pictures taken same day. Lot 3 is a concrete surfaced lot.

[2]See Appendix Table 1, 9, (2) for composition of corn silage.
[3]Provided by Charles Pfizer and Co.

Spring loaded cables make good dividing fences. Six strands would be better; some animals got through this five-strand fence.

Automatic waterers were placed on the center line of each lot and concrete paving was extended around them.

gained slightly faster (.22 pounds daily) than their 2B and 3B counterparts but the difference was not significant statistically.

Cattle in Lot 1 gained faster than the others during exceedingly hot weather. From July 9 through July 15, maximum temperature exceeded 100° F. The cattle in Lot 1 had a shelter for shade and the most space per head. Cattle in Lot 5 had shades available for use after July 12.

Effect of Shelter or Shade on Performance of Cattle
July 6 to August 3, 1966

	Lot 1 (with shed)	Lot 5 (shades)	Lots 2, 3, 4, 6, 7 (no shades)
Avg. Daily Gain (lbs.)	2.53	2.34	2.19

Although Lots 1 and 5 gained faster during this period the gains for all but one lot were about equal for the entire summer. Cattle have a compensatory mechanism whereby in many situations, including this one, low gains are followed by periods of higher gains.

Eighty-four percent of the cattle carcasses graded U.S. Choice and U.S.D.A. High Good, 12.4 percent graded U.S.D.A. Average Good and the remaining 3.6 percent U.S.D.A. Low Good. This system of management resulted in high yielding carcasses; there were no wasty carcasses. The average cutability yield grade on a five point scale was 2.6. This yield grade indicates a high yield of boneless retail cuts and a low yield of wasty fat. A dressing percent for all cattle averaged 60.3, a high average for cattle of this weight and grade.

Marbling, a prime factor in determining carcass grade, was deficient in some cattle and the rib eyes of some carcasses were softer than desired. Whether additional time on full feed would have improved the U.S.D.A. grade materially is debatable. The cuttability would, without question, have been lowered.

Market prices on finished cattle got steadily worse after the sale date. From an economic standpoint the cattle were sold none too soon.

Putting cattle on a full feed of corn silage at an earlier date would have resulted in an earlier sale date. However, feeding pens were not completed until February. Normally, cattle would have been on a full feed of silage three months earlier.

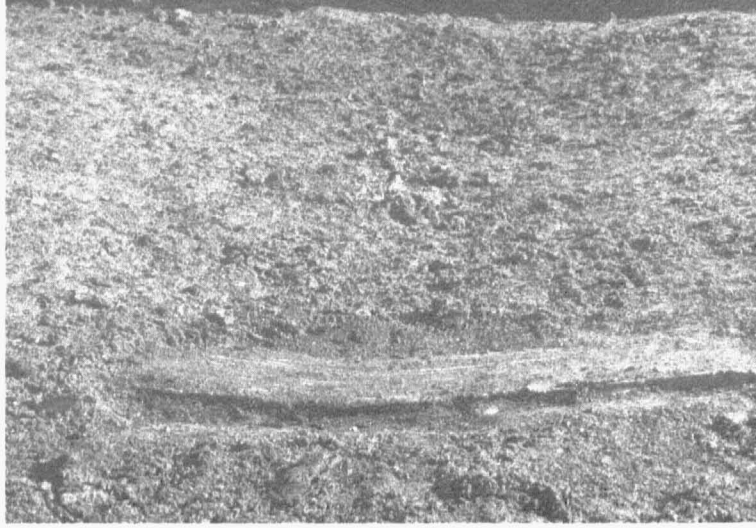
Feed cost per hundredweight gained on test was low (see Appendix, Table 4).

Facilities and Equipment

The experimental feedlot facility at Weldon Springs is located on a southern exposure and lots fall away on a 6 percent slope. Each of the seven lots is provided with 80 lineal feet of concrete feed bunk which was assembled from precast units. A three-foot gap was left in the bunk line at each lot division for clean-out purposes and to provide easy access to the lots. It was found desirable to pave the floor of this opening.

Automatic waterers were placed on the center line of each lot so that future lot division could be accommodated. A concrete pad was placed around each waterer and connected to the feed bunk paving. Water fountain spillage was minimized and water hammer noise eliminated by installing a pressure reducer and

Spillage from waterers led to some erosion of fill adjacent to the concrete aprons.



Swinging the pavement uphill into the mound in lot 4 solved the erosion problem by directing water away from traffic area.

an air cushion in the water line. Pressure was reduced to 30 pounds per square inch.

There was some spillage from waterers and this caused erosion of fill adjacent to the concrete slab. (See picture.) This can be prevented by providing special drainage, as was done in lot 4 by swinging the paved area uphill onto the mound, away from heavy traffic of cattle.

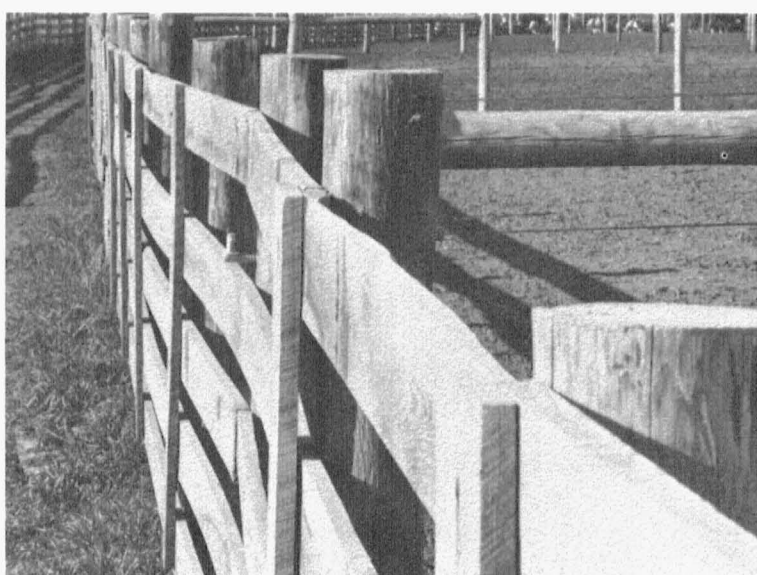
Where only a two-foot strip of concrete was used adjacent to the feed bunk, excessive erosion from the edge of the paved strip was encountered. This resulted in an undesirable situation for animals trying to eat from the feed bunk. Cattle would stand on the two-foot strip and turn their heads to eat from the bunk.

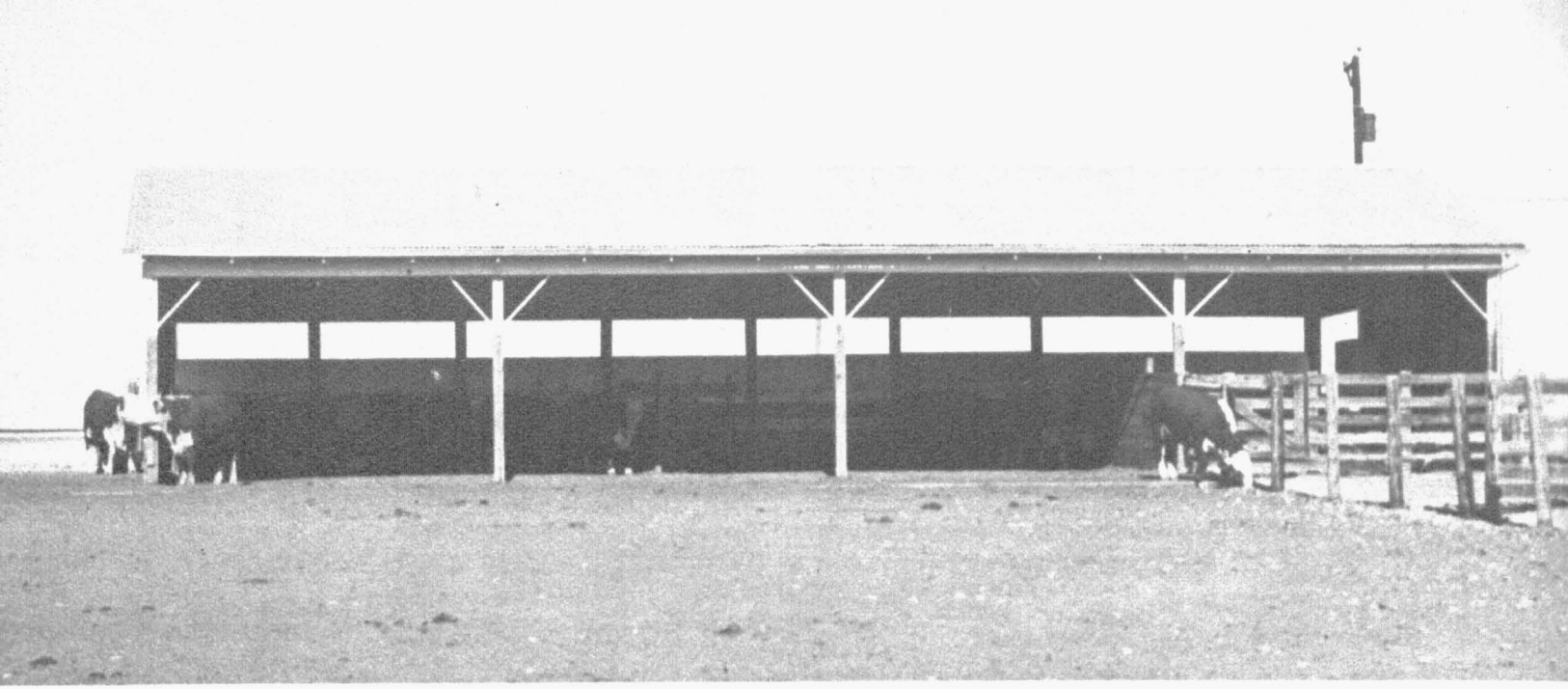
Cattle were confined to an area of 80 square feet per animal in lots 2A and 2B and 60 square feet per animal in lots 3A and 3B, compared with 420 to 675 square feet in other lots. In these lots, cattle traffic worked the manure off of an area six to eight feet wide the length of the feed bunk. Manure piled up back of this area, and it would not move of its own accord on these surfaces and slopes under the weather conditions that prevailed. Cattle preferred to lie down in the cleared area alongside the bunks. A greater concentration of cattle would result in more traffic and possibly greater movement of manure.

Limestone-covered mounds stayed dry and firm when lots became muddy. Pictures on page 9 show the dramatic contrast of mound and level lot conditions in wet weather.

Erosion of fill from too narrow apron requires extra maintenance to correct this awkward situation (lot 6).

End post movement in cable fence is evident below, suggesting need to anchor posts with concrete or special anchors.





Cattle in lot 1 were provided with this shed for shade and shelter.

The two sun shades in lot 5 were built to different standards for demonstration purposes. One shade was covered simply with snow fencing. The other was covered with sheet metal which was painted white on the top surface to reflect the sun and black on the bottom to absorb radiation from surrounding ground surfaces.

The interesting result observed with the shades was that cattle used the snow fence shade only when temperatures were below 90° F.; above 90° F. cattle would crowd under the sheet metal shade. The sheet metal shade was the most popular.

The lots were not filled to capacity this first year. All animals had the same amount of feed bunk space but there was some variation in the amount of area provided for each animal, as noted previously.

The fences constructed of five cables spaced ten inches apart failed to prevent a few cattle from slipping through when animals either became excited or were crowded against them. More than five strands appear necessary for these lot division fences. The end panel posts for a cable fence need to be anchored in concrete or by special anchors since all fence forces are carried to the end panels.

Back rubbers recharged as needed with toxaphene and fuel oil controlled external parasites in winter. Cattle feces were relatively free of worm eggs and anthelmentics were not advised by the School of Veterinary Medicine.

These are the sun shades that are being tested in lot 5. Left, sheet metal top; right, snow fence top. *(See page 10 for some test results.)*

Appendix

Table 1

FEED INPUT-OUTPUT RELATIONSHIPS TO CATTLE FEEDING--GROWING PERIOD
February 16, 1966 - May 10, 1966 (84 Days)
All weights represent averages in pounds unless stated otherwise

Lot Number	1	2A	2B	3A	3B	4	5	6	7
No. Cattle	35	18	18	17[a]	18	36	36	35	35
Wt. May 11	729.3	708.8	704.5	712.9	718.6	732.1	727.2	734.3	728.2
Wt. Feb. 16	520.8	515.4	512.4	512.2	521.8	518.2	516.3	516.4	509.8
Total Gain	208.5	193.4	192.1	200.7	196.8	213.9	210.9	217.9	218.4
Daily Gain	2.48	2.30	2.29	2.39	2.34	2.55	2.51	2.59	2.60
Total Feed Fed									
Corn Silage[b]	3683	3797	3747	3822	3777	3836	3788	3805	3810
Soybean Oil Meal[c]	145	147	148	147	148	150	146	148	148
Mineral[d]	22	23	23	22	21	22	21	22	22
Stilbestrol Implant	twenty-four milligrams per head on 3 March 1966 to all cattle								
Daily Ration									
Corn Silage	43.8	45.2	44.6	45.5	45.0	45.7	45.1	45.3	45.5
Soybean Oil Meal	1.7	1.7	1.7	1.7	1.8	1.8	1.7	1.8	1.8
Mineral	four ounces per head per day to all cattle								
Feed / 100 lbs. gain									
Corn Silage	1766	1963	1951	1904	1919	1793	1796	1746	1745
Soybean Oil Meal	69	76	76	73	75	70	69	68	68
Mineral	12	12	12	11	12	10	10	10	10

(a) One steer died from listeriosis (circling disease); two died earlier from urinary calculi.

(b) Corn silage Composition:

Moisture	Fat	Fiber	Ash	Nitrogen	Calcium	Phosphorus
61.1	1.3	7.9	2.0	0.57	0.11	0.10

(c) Soybean oil meal - 44% Crude Protein

(d) Equal parts by weight of feeding limestone, steamed bone meal, iodized salt.

Table 2

FEED INPUT-OUTPUT RELATIONSHIPS TO CATTLE FEEDING--FINISHING PERIOD
May 11, 1966 - October 2, 1966 (144 Days)
All weights represent averages in pounds unless stated otherwise

Lot No.	1	2A	2B	3A	3B	4	5	6	7
No. Cattle	35	18	18	17[a]	18	36	36	35	35
Wt. Oct 2	1047.0	1034.4	1002.3	1019.2	1010.1	1033.9	1038.5	1033.8	1001.5
Wt. May 1	729.3	708.8	704.5	712.9	718.6	732.1	727.2	734.3	728.2
Total Gain	317.7	325.6	297.8	306.3	291.5	301.8	311.3	299.5	273.3
Daily Gain	2.21	2.26	2.07	2.13	2.02	2.10	2.16	2.08	1.90
Total Feed Fed/head									
Corn Silage[b]	805	805	805	805	805	815	809	813	809
Corn and Cob Meal	2596 lb. 37 bu.	2537 lb. 36.2 bu.	2515 lb. 35.9 bu.	2607 lb. 37.2 bu.	2536 lb. 36.2 bu.	2602 lb. 37.2 bu.	2614 lb. 37.3 bu.	2592 lb. 37.0 bu.	2585 lb. 36.9 bu.
Prot. Supp.[c]	297.8	291.6	289.3	297.8	291.4	298.7	299.7	297.6	296.7
Daily Ration[d] Per Head									
Corn Silage (47 day only)	17.1	17.1	17.1	17.1	17.1	17.3	17.2	17.3	17.2
Corn & Cob Meal	18.0	17.6	17.5	18.1	17.6	18.1	18.2	18.0	18.0
Prot. Supp.	2.06	2.03	2.0	2.06	2.03	2.07	2.08	2.06	2.06
Feed/100 lb. Gain									
Corn Silage	253.3	247.2	270.3	262.8	276.1	270.0	259.8	271.4	296.0
Corn & Cob Meal	817.1	779.2	844.5	851.1	870.0	862.2	839.7	865.4	945.8
Prot. Supp.	93.7	89.6	97.1	97.2	100.0	99.0	96.3	99.4	108.6

(a) One steer died during wintering period from listeriosis

(b) Corn silage was not fed after June 27; too little was used daily to maintain the quality

(c) The protein supplement contained urea, soybean oil meal, vitamins, trace minerals and stilbestrol

(d) Analysis of finishing ration; after silage was withdrawn
Crude protein 12.6%, Fiber 6,3%, Ash 3.03%

Table 3

INPUT-OUTPUT RELATIONSHIPS TO CATTLE FEEDING--GROWING AND FINISHING COMBINED
Total Period Feb. 16, 1966 - Oct. 2, 1966 (228 days)
All weights represent averages in pounds unless stated otherwise

Lot No.	1	2A	2B	3A	3B	4	5	6	7
No. Cattle	35	18	18	17	18	36	36	35	35
Wt. Oct. 2, 1966	1047.0	1034.4	1002.3	1019.2	1010.1	1033.9	1038.5	1033.8	1001.5
Wt. Feb. 16, 1966	520.8	515.4	512.4	512.2	521.8	518.2	516.3	516.4	509.8
Total Gain	526.2	519.0	489.9	507.0	488.3	515.7	522.2	517.4	491.7
Daily Gain	2.31	2.28	2.15	2.22	2.14	2.26	2.29	2.27	2.16
Total Feed Fed / Head									
Corn Silage	4488		4552	4627	4582	4651	4597	4618	4619
Corn & Cob Meal	2596	2537	2515	2607	2536	2602	2614	2592	2585
Prot. and Minerals	465	462	460	467	463	471	467	468	467
Feed / 100 lb. Gain									
Corn Silage	852.9	886.7	929.2	912.6	936.4	901.9	880.3	892.5	939.4
Corn & Cob Meal	493.3	488.8	513.4	514.2	479.4	504.6	500.6	501.0	525.7
Prot. and Minerals	88.3	89.0	93.8	92.1	94.8	91.3	89.4	90.5	95.0

*Same footnotes apply to this table as were used in tables I and II.

A GUIDE FOR COMPUTING FEED COSTS USING LOT 1 AS AN EXAMPLE

Amount Fed and its Cost per 100 lbs. Gain at Various Feed Prices

853 Pounds Corn Silage		493 Pounds Corn and Cob Meal		88 Pounds Protein Supplement	
Price	Cost	Price	Cost	Price	Cost
$8/ton	$3.41	$1.00/bu.	$ 7.05	$3.00/cwt.	$2.64
		1.10/bu.	7.74	3.50/cwt.	3.08
9/ton	3.84	1.20/bu.	8.43	4.00/cwt.	3.52
		1.30/bu.	9.17	4.50/cwt.	3.96
10/ton	4.27	1.40/bu.	9.86	5.00/cwt.	4.40
		1.50/bu.	10.55	5.50/cwt.	4.84

EXAMPLES: Assuming lowest feed prices in the table (corn silage $8 per ton, corn and cob meal $1 per bushel, protein $3 per hundredweight), the silage would have cost $3.41, the corn and cob meal $7.05 and the protein supplement $2.64 per hundredweight of gain for a total cost of $13.10 for 100 pounds of gain.

Using the highest prices in the table, the silage would have cost $4.27, the corn and cob meal $10.55, and protein supplement $4.84 for a total of $19.66 per hundred pounds of gain.

SILAGE ANALYSES

SILAGE FOR LOT NO.:	MOISTURE	NITROGEN
7*	72.15%	1.66%
5*	70.95%	1.63%
3*	72.08%	1.66%
1*	71.98%	1.66%
L 1**	67.36%	3.06%
L 1**	68.02%	3.05%
2**	67.62%	3.17%
2**	67.47%	2.81%
3**	68.24%	2.88%
3**	66.85%	2.80%
4**	67.53%	3.31%
4**	68.43%	3.08%
5A**	66.54%	2.86%
5B**	64.30%	3.12%
6A**	67.31%	3.28%
6B**	68.33%	2.88%
7**	66.98%	3.16%
7**	67.63%	3.09%

* Without protein supplement.
** With protein supplement.

SAMPLE OF ANALYSES RUN ON FEED

FEED FOR LOT NO.:	NITROGEN	ASH	FIBER
1	2.02%	2.99%	6.90%
2-A	1.97%	2.87%	6.50%
2-B	1.97%	2.88%	6.80%
3-A	2.03%	3.11%	6.20%
3-B	1.95%	2.84%	6.10%
4	1.98%	2.87%	5.50%
5	2.08%	3.19%	6.10%
6	2.08%	3.38%	6.50%
7	2.13%	3.15%	6.20%
Average	2.02%	3.03%	6.31%

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