

ECONOMICAL RATIONS FOR BEEF PRODUCTION  
WITH FEEDS ADAPTED TO WESTERN KANSAS

By

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FEEDS ADAPTED TO WESTERN KANSAS.

The last fifteen years in Western Kansas has been a period of great change, and the stockmen and feeders have been confronted with the question of economical beef production.

This has been due to the increase in population in the East, and the steady flow of immigration from the Eastern countries, moving the center of population of the United States westward, with the result that in the last ten or fifteen years the plains of Kansas have been rapidly settled up. This has been a benefit to Kansas as a state no doubt, but to the cattlemen, who before this increase in population, had had unlimited range for their cattle, the result has been financial disaster to the cattle business as formerly carried on, on account of the introduction of crops.

In the early days before this period of settlement began the cattlemen had unlimited range for their herds which grazed and fattened all year on the rich, palatable and nutritious buffalo grass which covered the plains, and possessing the desirable quality of curing on the ground, made, owing to the mild winters, a method of beef production that never has, nor probably never will be equaled.

The buffalo grass had great fattening properties and the cattle being allowed to run until they had reached an age of four to five years were sold at a good price, and as their cost was nothing the profits were enormous, and the cattlemen grew rich. These conditions, however, could not continue always. The farmer was steadily pushing westward along the streams and taking up homesteads wherever a suitable location was found; steadily cutting



down the cattleman's range and forcing him to build fences to keep his stock away from crops. As this continued the cattleman found himself robbed of his range and forced to look for some other method of producing his beef. This also forced himself to sell his cattle at a younger age, and in order to have them in shape he was forced to rely upon some of the concentrated foods to produce the required results.

This was a great problem. The west was not admirably adapted for an agricultural country and crops grown in the eastern states were not adapted for western conditions. The great discovery was made when alfalfa was brought to Kansas and found to grow upon the plains of the west. Then came Kaffir corn which was successful nearly every season. These with a few of the following made up his quota of feeds. Wheat is raised in considerable quantities with considerable success, probably more than any other feed but its value as a beef producer is small and it is not used to any extent for fattening, although the straw finds considerable use in shape of roughness..

As has been mentioned before the most important grain that can be used by the western Kansas man is Kaffir corn. Its yield is good and it withstands drouth and other unfavorable conditions very readily. Its production is rapidly increasing in the west as the stockmen have begun to realize that its value as a beef producer is nearly on a par with Indian corn.

Barley is raised quite extensively but has not as yet been widely used for feeding beef and very little can be said as to its value at the present time.

Alfalfa stands at the head of the forage crops and its



value cannot be questioned. It has been raised successfully along the creeks and in places where it is not far to water or can be irrigated. The amount of hay per acre is not large but it is sufficiently so to make it one of the standard feeds of the west.

Among the other successful feeds are sorghum, prairie hay, flax, millet and rye, all of which are more or less used.

As to Indian corn little need be said. Its production is not sufficient and reliable, as has been stated, to make it a standard feed, but from the close proximity of the corn belt it can be used with a great deal of success by shipping it in to the arid districts. This of course depends upon its price compared with that of other feeds.

The collection of data with regards to the value of the above named feeds which are adapted to western Kansas has been difficult because of the fact that the feeders themselves have kept little or no track of their results and the amounts of the respective feeds used or their cost. This probably results from the fact that they are unacquainted with the balanced ration or have failed to realize its value.

The majority of experiments with those feeds suitable to western Kansas has been made at K. S. A. C., and are very valuable to the stockmen of the west because the conditions are nearly the same.

The figuring of the cost of these rations has been in some cases only approximate, as sufficient data was not given to make them accurate. The experiments as near as possible have been those confined to out-of-door feeding as this is the only way that cattle are fed in the west at the present time. No



efforts have been made to limit the experiments to certain breeds of cattle as there is no especial breed of beef cattle predominating in the west.

Experiments with corn meal vs. ear corn

K. S. A. C. Experiment Station.

Feeds	Grain eaten	<u>Scrub</u> Fodder	Gain	Grain 100 lbs. gain	Stover 100 lbs. gain	Cost 100 lbs. gain
Corn meal	3575	940	268	1334	350	\$8.50
Ear corn	4027	1341	284	1418	472	7.35

Short Horn.

Corn meal	2646	607	240	911	209	6.24
Ear corn	3223	538	330	1402	232	6.99

These experiments were conducted at K. S. A. C., and in the first experiment range steers were used, while in the second they were Shorthorns. The experiment shows that figuring cost of grinding at 2 cents per bushel and corn at 35 cents, and corn stover at \$1.50 per ton, that ear corn is best for feeding in one case and corn meal in the other. It also shows the superiority of pure bred versus scrubs.

The following experiment is to determine the value of corn and cob and husk meal versus coarse corn meal. The steers were running on pasture.

Feeds	Feeds eaten	Feed 100 lbs. gain	Cost 100 lbs.
Corn cob & husk meal	2395	488	\$2.45
Coarse corn meal	1864	400	2.54



The result is slightly in favor of the corn cob and husk meal, the balance being due to the amount of cob and husk as 77 pounds of the former=56 of the latter feed.

Another experiment of steers on pasture gives the following:

10 steers on pasture 2.01 lbs. gain daily

10 " " " & grain 2.13 " " "

Steers fed 10 lbs. of corn and cob meal for grain.

Cost of gain 5 cents per 1.2 lbs. gain.

This indicates that it was not profitable to feed grain on pasture.

Feed	Daily gain	Grain 100 lbs. gain	Hay 100 lbs. gain	Cost 100 lbs. gain
Corn meal				
Oil meal				
Shorts & bran	2.4	1000	320	\$7.11
Timothy				

If alfalfa was substituted for timothy the same results would probably be obtained but the variety of feeds would make the ration undesirable.

Feeds	Daily gain	Grain 100 lbs. gain	Hay 100 lbs. gain	Cost 100 lbs. gain
Corn meal & stover	1.47	1334	350	\$7.87
Ear corn & stover	1.72	1556	280	8.05

These two rations would be undesirable because of the lack of feed of that nature and also the cost of production of gain.

At the Oregon Station four steers 3 years old were fed 75 days in stall on corn silage, clover, and sheaf wheat; 21.9 lbs. of wheat, 20.2 silage, and 4.9 lbs. of clover hay daily. Result



was very unsatisfactory and concluded that it was not practical.

The following is by the Standard Cattle Company, of Allen, Nebraska. It should be very valuable from the fact that careful records have been kept of their work and their conditions are similar to those of western Kansas:

1894-5			1895-6		1896-7	
Feeds	Bus.	Cost per head	Bus.	Cost per head	Bus.	Cost per head
Corn	28.3	\$12.13	44.7	\$7.19	6.91	\$8.55
Oats	.3	.04	8.6	2.17	.2	.03
Bran	6.1	2.44	5.2	1.59	2.3	.46
Alfalfa	7.6	4.27	3.7	6.67	.7	.37
Wheat	4.1	2.13				.04
Peas						
Barley					.7	.17
Hay (Tons)	.6	3.61	.4	.63	.7	.78
Stover					1.1	1.55
Beets		.12		1.24		.71
Silage		.03		.07		.16
Salt		.03		.02		.04
Totals		24.85		14.58		12.80
Aver. gain		2.17		2.38		2.38
Cost 100 lbs. gain		11.45		6.12		5.38

With one or two exceptions this list of feed is available to every farmer and stockman of western Kansas and the results are very satisfactory.

The cattle used were range cattle and the methods of feeding nearly the same as the ordinary stockman uses. The steers 4 and 5 years old and fresh from range so that the first part of



the experiment would probably be very unfavorable.

The following is a comparison at the Ohio Station of wheat meal and corn meal and gives an insight as to their respective values:

Feeds	Daily gain	Cost 100 lbs. gain
Corn meal	2.07	\$7.79
Wheat meal	1.98	7.75
Corn meal	2.02	7.01
Wheat meal	1.70	8.95

The above figures show that corn meal is superior to wheat meal and at prevailing prices should be given the preference. Only in case of exceptionally low price of wheat would it be advisable to give it the preference over corn.

The following shows bran is superior to wheat according to following experiment:

Bran fed 24,664 lbs.

Hay fed 28, 925

Gain 15 steers 3545

Average gain (4 mos.) 234

Taking bran at 70 cents per cwt. and hay at \$4.00 per ton, the cost for 100 lbs. gain is \$6.36.

679 lbs. bran and 816 lbs. hay for 100 lbs. gain.

An experiment was conducted at K. S. A. C. to show the relative value of corn and Kaffir corn and gave good results; the feeds used were suitable to western Kansas conditions. Kaffir



corn fodder as used in this experiment is a practicable feed for the west as is also alfalfa and corn fodder. The cattle were grades fed in open lots.

Feeds	Lbs. fed	Amt. fed daily	Cost 100 lbs. gain	Gain	Daily gain	Days fed	Gain from hogs
Corn meal	3254	18.6					
K.C. Fodder	2573	14.7	373	1632	1.86	175	\$7.10
Alfalfa & Corn fodder	286	1.6					
Kaffir corn & K.C. Fodder	3254 2573	18.6 14.7	4.15	1497	1.71	175	\$10.12
Alfalfa & Corn fodder	286	1.6					
K.C. (White) K.C. Fodder	3254 3101	18.6 17.7	4.60	1568	1.78	175	\$11.20
Alfalfa & Corn Fodder	3101 286	17.7 1.6					

This shows practically no difference between white and red Kaffir corn for feeding and the reason for so much more passing through cattle as is shown by gain of hogs is due to the fact that the Kaffir corn was not ground while corn was in form of meal. On the whole it shows that Kaffir corn is equal to corn and taking into consideration the larger yield and the fact that it is more generally successful than corn would indicate that it is a better ration.



The following feeds are estimated at the following prices:

Corn meal @ 35 cents per cwt.

Bran at 50 " " "

Oil meal @ 88 " " "

Cut corn  
fodder @ 15 " " "

Alfalfa @ 20 " " "

This experiment was performed at K. S. A. C. 20 steers were fed 147 days. The steers were Shorthorns and the results are taken for the average steer:

Feeds	Lbs. eaten	Cost	Gain
Corn meal	1941.5	6.795	381 lbs.
Bran	517.74	2.58	Daily Gain
Oil meal	517.74	4.55	261 lbs.
Corn fodder	431.25	.647	
Alfalfa	511	1.022	

Cost for 100 lbs. of gain \$4.06

The following experiment was conducted at K. S. A. C. with steers of different ages:

Age	No.	Feed	Feed for 100 lbs. gain		Cost 100 lbs. gain
			Roughness	Grain	
1 yr.	20	Alfalfa			
		Corn			
		Kaffir corn	409.8	630.2	5.03
2 yr.	20	"	483.5	733.3	5.44
3 yr.	20	"	546	794	5.95
2 yr.	10	K.C.Stover			
		Corn			
		Kaffir corn	825	1005.4	6.68



This table, although not in the line of the subject, shows good gains and results with feed adapted to western Kansas, and also the importance of fattening cattle while young. The cattle were fed 210 days.

The preceding figures and tables give but little insight into the question of economical beef production in western Kansas. The data on the subject is limited and in gathering the above the question of future feeds and possibilities was taken into consideration. Western Kansas is making at present such rapid strides toward increased population that it is hopeless to even surmise what the future will bring forth.

At present, however, the cattleman's mind is taken up with the question of economical beef production and it will only be with careful study of the environment in which he is situated that he will be able to solve the intricate problem that confronts him. As has been stated these figures have been taken from experiments under conditions nearest those of the west and the question of breeds has been eliminated as far as possible as each man has his own particular breed and will claim its superiority over all others in almost every case.

There is little more to be said. The cattleman must study his conditions in breeding and make careful calculations of the gains and results of different feeds before the question can be satisfactorily solved.



THESIS.

Sources of information: Kansas State Agricultural College Experiment Station; Henry's Feeds and Feeding; Oregon Experiment Station; and Ohio Experiment Station.