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EXTENSION SERVICE

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## RATIONS FOR FATTENING CATTLE

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Simple Directions for Fattening Cattle in Texas  
for Market.

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Co-operative Extension Work in Agriculture and  
Home Economics, Agricultural and Me-  
chanical College of Texas and U. S.  
Department of Agriculture  
Co-operating.

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## *Rations for Fattening Cattle.*

(By John C. Burns, Head of Animal Husbandry Department, A. and M. College of Texas.)

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That Texas cattlemen are rapidly taking up the practice of finishing their cattle for the market themselves, instead of shipping them to the corn belt to be finished by others and they are realizing the importance of growing feedstuffs and marketing them in the form of beef and of utilizing the manure for the production of more feedstuffs with which to produce more beef are clearly evidenced by the vast number of inquiries for information along these lines that are being received by the Texas A. and M. College and Experiment Station. In this new era of beef production silage, composed chiefly of Indian corn, kafir, maize, feterita and sorghum, is playing a most important part and will continue to do so more and more as time goes on. Fed in connection with it are cotton seed meal and cake, the grain of kafir, milo maize, or feterita, sometimes of Indian corn, and often dry roughage, such as sorghum hay, cotton seed hulls, and oat straw. These are chiefly the feeds that are to make Texas noted for its finished cattle, as it has long been noted for its feeders.

This is the fourth year of experiment feeding by the Texas Experiment Station in which silage has been fed in different combinations and compared with other feeds for fattening cattle. Among other things, our results show that it requires, on the average, one and two-thirds tons of silage to equal one ton of cotton seed hulls in feeding value. Therefore, if cotton seed hulls is available at \$5.00 a ton, one cannot afford to pay over \$3.00 a ton for silage, or if hulls is available at \$7.00 a ton, one cannot afford to pay over \$4.20 a ton for silage, expenses of hauling being equal, of course. These results should not be surprising when we consider that silage contains, on the average, about 74 per cent water, and cotton seed hulls only about 11 per cent water. On the other hand, a given amount of dry matter in silage is considerably higher in feeding value

than the same amount of dry matter in cotton seed hulls. This Station has made no tests directly comparing in feeding value the various kinds of silage above mentioned, but tests at the Kansas Station in feeding beef cattle give first place to kafir silage, second place to sorghum silage and third place to corn silage. Though the differences reported are small, we may safely conclude that silage made from the sorghums, and especially kafir and the sweet sorghums, is practically equal in feeding value to silage made from Indian corn. Sumac sorghum (red top) is strongly recommended as a silage crop for Texas on account of its heavy foliage yielding qualities and wide range of adaptability.

The most profitable ration that we have used has been composed of cotton seed meal and silage. Though this ration is not perfectly balanced for fattening, it is good and has proved the most economical on account of its relative cheapness. Taking a bunch of range bred two-year-old steers weighing 750 to 800 pounds when they are put on feed, they may be started on 2 1-2 pounds of meal and about 36 pounds of silage per head daily. The silage may be increased at the rate of 4 or 5 ~~per~~ day, so that by the fourth or fifth day the cattle should be receiving as much of it as they will clean up. The cotton seed meal should be gradually increased after the second or third day, so that by the fortieth day it is 5 pounds per head daily. It is well to continue it thus until about the seventieth or eightieth day and then gradually increase it to 6 pounds for the remainder of the feeding period. The amount of increase for any one day should hardly exceed 1-4 pound and probably an increase of 1-8 pound is better. During the first month the steers will probably eat 56 to 58 pounds of silage per head daily, but after the meal has reached 5 pounds they will usually drop back to about 50 pounds of silage. It is very important, of course, that the meal and silage be thoroughly mixed together when fed. If one has dry forage, such as sorghum hay, prairie hay, kafir stover, or oat straw to be disposed of, or if silage used as the only roughage is likely to run short, then such dry forage may be substituted for one-fourth to one-

half of the silage in the ration, but otherwise, there seems to be no advantage in using it. There seems to be nothing that cattle relish any more than they do silage, and after becoming accustomed to it they should not be deprived of it and changed to dry feed entirely, if the best results are to be obtained.

If one has in addition to cotton seed meal and silage some grain, such as kafir, milo maize or feterita for feeding, a much better balanced ration can be formed and one with which it is possible to obtain heavier gains and a better finish than with only cotton seed meal and silage. Using this ration and taking steers similar to those described, they may be started on 2 1-2 pounds of cotton seed meal, 3 pounds of grain, and about 36 pounds of silage per head daily. After three or four days, the concentrates should be increased gradually so that the fortieth day the steers are eating 3 1-2 pounds of meal and 12 pounds of grain. Though they will eat about 45 pounds of silage for a while after the first three or four days, they will gradually eat less, of course, as the concentrates are increased, so that by the fortieth day the amount of silage will be about 36 pounds per head daily. Thus the ration should continue until the seventieth or eightieth day and then be increased gradually to 4 pounds of cotton seed meal and 16 pounds of grain for the remainder of the period. With the increase in concentrates the silage will gradually drop back to about 25 pounds per head daily. The grain should be ground, whether it be threshed or in the head, for the best results, and the meal, grain and silage should be thoroughly mixed together when fed. The increases in grain should not exceed one pound per head for any one day. If dry roughage is also fed, the ration would then be about as follows:

Four pounds cotton seed meal, 16 pounds ground maize, kafir or feterita, 18 pounds silage, 3 to 5 pounds dry forage.

In using this ration it is important to have hogs follow the cattle if possible, as this will result in considerable gain. It is best to use shoats weighing from 100 to 125 pounds at the start and it should be possible to run, at least, one shoat to every two steers, though until the

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steers have gotten well upon grain, it will be advisable to supply the shoats with a little additional feed.

Ordinarily it requires at least 150 days to put two-year-old steers in condition for prime beef. Those that are above the average in flesh when started on feed may be finished in a shorter period, possibly 120 days.

Though this is primarily a discussion of rations, there are other things that are of great importance in obtaining the best results in cattle feeding. Too much emphasis can hardly be placed on regularity as to time of feeding. Salt should be kept so that cattle may have free access to it, and the same may be said of a pure water supply. Fattening cattle do not suffer materially from the cold, but they do better if they have a dry place to lie down.

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## *Feeding Value of the Grain Sorghums.*

Numerous tests have been made by Experiment Stations to determine the feeding value of the grain sorghums particularly, kafir and milo maize, in comparison with Indian corn. In two tests at the Texas Station equally as good results were obtained from kafir and milo maize, pound for pound, as from Indian corn. At the other stations the feeding value of these grains varied from 7 per cent to 12 per cent below that of Indian corn. If we take into consideration the results of all tests we can conservatively say that the feeding value of kafir and maize, on the average, is within 10 per cent of that of Indian corn.

No feeding tests have been made with feterita. Its chemical composition, however, would indicate it to be fully equal to kafir and maize, and probably somewhat superior, since it is richer in protein.

Kafir, maize and feterita can be used in live stock feeding for every purpose for which Indian corn can be used. In other words, they can take the place of Indian corn in any ra-



tion in which the latter has a place, though, of course, to obtain equal results in the case of such substitution, the proper allowance would have to be made to cover the difference in feed values. It should therefore be merely a matter of relative prices as to whether one should feed the grain sorghums or Indian corn.

In the preparation of kafir, maize and feterita for feeding, they should be rather finely ground for cattle, hogs and horses, in order to obtain the best results. For sheep, grinding does not appear to be necessary or profitable. If these grains are not ground for cattle, hogs and horses, they should be fed in the head, in order that they will be eaten more slowly and be more thoroughly masticated. Even in feeding the heads, however, grinding is an advantage.

The Animal Husbandry Department of the A. and M. College has been using ground maize, kafir or feterita in the place of corn altogether during the past year for horses, cattle, sheep and hogs, and that we are well pleased with the results we have obtained is evidenced by the fact that we expect to continue using them as long as we can obtain them at a lower price than we can the same feeding value in Indian corn.

#### Percentage Composition of Indian Corn and the Grain Sorghums.

Name of Feed	Water	Ash	Protein	Crude Fiber	Nitrogen Free Extract	Fat
Corn . . . . .	10.6	1.5	10.3	2.2	70.4	5.
Kafir . . . . .	11.22	1.65	10.84	2.46	70.83	3.
Milo Maize	9.	2.3	10.7	3.	72.2	2.8
Feterita . .	10.83	1.64	12.95	2.04	69.66	2.89



Eighteen months old steer, weighing 1,100 pounds, fattened on Texas feeds by the Animal Husbandry Department of the A. and M. College of Texas.

Well bred calves of the beef breeds, intelligently fed on balanced rations, will furnish a profitable market for Texas raised feedstuffs.