

COOPERATIVE EXTENSION WORK
IN
AGRICULTURE AND HOME ECONOMICS

STATE OF OKLAHOMA

E. E. SCHOLL, Director

OKLAHOMA AGRICULTURAL AND
MECHANICAL COLLEGE AND
UNITED STATES DEPARTMENT OF
AGRICULTURE, COOPERATING

EXTENSION SERVICE
COUNTY AGENT WORK
STILLWATER, OKLA.

Distributed in Furtherance of the Acts of Congress of May 8 and June 30, 1914

Drouth Rations
for
Oklahoma Livestock

F. W. BEALL

Assistant Extension Animal Husbandman



DROUTH RATIONS FOR OKLAHOMA LIVESTOCK

F. W. BEALL

Assistant Extension Animal Husbandman

LIVESTOCK OUTLOOK

With pasture conditions in Oklahoma as of August 1, 1936 estimated to be only 25 per cent of normal, tame hay 34 per cent, wild hay 37 per cent, corn 24 per cent and grain sorghums 36 per cent, Oklahoma livestock men are faced with a feed shortage almost as bad as in 1934. Livestock men, and particularly cattlemen, who are able to keep present herds intact through this period of drouth and feed shortage should be in position to cash in on higher prices in 1937 than they have had in 1936, and probably higher than they had in 1935. Owners of breeding herds should make every effort to maintain the health and quality of all animals to be retained in the herd since there will undoubtedly be considerable demand for replacement of breeding animals during 1937.

DROUTH FEED PROBLEMS

Insufficient Protein Feed. Feeds that are used to a greater extent during the drouth period than during normal years ordinarily consist largely of such carbonaceous roughages as wheat and oats straw, corn and grain sorghum fodder, silage, prairie hay and cottonseed hulls. Such feeds are all low in protein and for this reason it becomes imperative that the feeder who wishes to maintain the health and proper growth and development of his livestock supply additional protein.

Insufficient Mineral in the Ration. Feeds listed above that are low in protein are also normally quite low in such needed minerals as calcium and phosphorus. It is recommended that every livestock feeder provide all classes of farm animals with a mineral mixture available at all times. The mineral mixture should consist of equal parts, by weight, of ground limestone, ground steamed bone meal and salt. In those sections of the state where ground bone meal may be obtained more cheaply than ground limestone the mixture should consist of two parts ground bone meal and one part salt. Livestock will consume all that is needed of such a mixture if it is placed in a box near the watering place or some other point frequently visited by the livestock. Mineral is especially recommended for rations in which a legume hay is not included.

Deficiency Diseases. Various deficiency diseases may occur as a result of insufficient feed or an improperly balanced ration. The more common of these are pregnancy disease of sheep and rickets in hogs. These diseases are usually the result of an insufficient amount of mineral or vitamins in the ration and may be corrected by the addition of proper feeds. Vitamins are present in green pasture or in bright green forage and are also found in feeds having a yellow color such as yellow corn.

Improper Growth and Development. The feeder who fails to provide his livestock with a well balanced ration will be penalized by improper growth and development of young animals in the flock. A special effort should be made to provide a well balanced ration with sufficient pro-

tein and minerals, as well as the other elements needed for all young livestock.

Danger from Poisonous Plants. Livestock will not ordinarily consume poisonous plants except during periods of drouth or scarcity when very little other forage is available. In all cases where losses are incurred as a result of eating poisonous plants the best preventive is to supply a well balanced ration of other feeds. Extreme care should be taken if animals are to be pastured on kafirs, sudan grass and similar plants during periods of drouth, or when rapid growth starts as a result of rains following drouth. Poison from oak, shinnery and similar plants may be avoided by the use of a well balanced ration in sufficient quantity.

EMERGENCY DROUTH FEEDS

Certain feeds are used to a much greater extent during periods of drouth than in ordinary seasons. The value of the various elements in these feeds should be considered when preparing a ration in order to supplement them properly with other more expensive feeds.

Silage has a very important place in the drouth ration for the reason that the high water content and laxative effect tend to increase the palatability of other coarse, dry feeds such as straw and prairie hay. A field of corn utilized as silage will winter approximately 25 per cent more cattle than a similar field utilized as dry fodder. Dry corn silage is about 15 per cent less valuable than that placed in the silo at the time it is harvested. Drouth silage will average approximately 80 per cent water.

Prairie hay has an important place in the drouth ration, but for the proper development of livestock must be supplemented with some high protein feed such as cottonseed meal, as well as a mineral. Prairie hay is particularly low in calcium.

Wheat straw is less valuable than prairie hay, but resembles it in many respects. It must be supplemented with protein and mineral.

Oats straw ranks between wheat straw and prairie hay in feeding value. It is slightly higher in protein than wheat straw, but must be supplemented with both protein and minerals.

Corn fodder is a valuable drouth feed, but it must be chopped or cut to induce animals to eat the entire stalk. Chopping or cutting does not increase the value or digestibility of the fodder, but will prevent some waste. This may be economical only if the farmer has the necessary equipment to cut his own fodder.

Grain sorghum and sweet sorghum fodder is similar to corn fodder in most respects. It should also be cut or chopped to prevent waste.

Cottonseed hulls are similar to wheat straw as a roughage. The protein content of cottonseed hulls is so low that a sufficient amount of other protein feed should be fed to supply all of the protein needed in the ration.

Russian thistle hay as a feed varies considerable with maturity of the plant at the time it is harvested. Cut at the proper stage before the plants become mature, Russian thistle hay has considerable feeding value. The value rapidly depreciates with maturity however, and may range from 25 to 50 percent as valuable as alfalfa.

Turnips occupy a place in the livestock ration similar to silage. The high moisture content of turnips makes them especially desirable in the winter ration to supplement dry roughages. They are also comparatively high in protein and may be considered a partial protein supplement. On the basis of their feed value 1,000 pounds of turnips will be equal to 100 pounds of yellow corn, 140 pounds of alfalfa hay, 200 pounds of prairie hay, or 500 pounds of silage.

Blackstrap molasses may frequently be purchased at a price that will justify its inclusion in the drouth ration. It is slightly laxative and highly palatable and may be fed by diluting with water and sprinkling over such dry feeds as straw and chopped corn fodder. By weight blackstrap molasses is approximately equal in feeding value to corn. Beet molasses is only 75 per cent as valuable as corn.

Winter wheat, oats and barley pasture are important feeds if sufficient fall rains are received to cause satisfactory growth. These plants used as pasture are very high in protein and should be considered a supplement for such dry carbonaceous feeds as prairie hay, wheat and oats straw, cottonseed hulls and corn fodder. Winter pasture is an excellent source of vitamins and for this reason has an important place in the ration of all classes of livestock. Cattle, sheep and horses may be wintered satisfactorily on wheat pasture with wheat or oats straw, but should be provided with a mineral supplement.

RATIONS FOR WINTERING BEEF COWS

Most cattlemen in Oklahoma expect to have a limited amount of dry grass pasture or wheat or oat pasture on which to graze their cattle during the winter months. The rations listed below are suggested as supplementary feeds for grass or wheat pasture. These rations are suggested for pasture that is extremely short. The amount of the supplementary ration can be increased or decreased, depending on the pasture on which the animals are grazed, the proportions, however, should remain approximately the same. Many cattle are wintered satisfactorily on wheat pasture and wheat straw, but additional supplementary feeds are suggested for properly balanced rations in those cases in which wheat pasture alone does not maintain the cattle in satisfactory flesh.

Dry Grass Pasture

Prairie hay — 8 pounds
Cotton seed cake — 1½ pounds

Wheat straw — 10 pounds
Cottonseed cake — 1½ pounds

Wheat straw — 6 pounds
Molasses — 3 pounds
Cottonseed meal — 1 ½ pounds

Silage — 25 pounds
Cottonseed cake — 1½ pounds

Prairie hay — 6 pounds
Alfalfa hay — 4 pounds

Corn fodder — 7 pounds
Cottonseed cake — 1½ pounds

Wheat or Oat Pasture

Straw — 10 pounds
Cottonseed cake — ½ pound

Straw — 5 pounds
Silage — 20 pounds

Prairie hay — 9 pounds
Cottonseed cake — ½ pound

Straw — 8 pounds
Turnips — 12 pounds

Corn fodder — 8 pounds
Cottonseed cake — ½ pound

Russian thistle hay — 5 pounds
Straw — 5 pounds

Dry Grass Pasture

Silage — 15 pounds
 Turnips — 15 pounds
 Cottonseed meal — ½ pound
 Prairie hay — 5 pounds
 Turnips — 15 pounds
 Cottonseed meal — 1 pound
 Silage — 20 pounds
 Alfalfa — 4 pounds
 Cottonseed hulls — 6 pounds
 Silage — 20 pounds
 Cottonseed meal — 1½ pounds
 Russian thistle hay — 4 pounds
 Prairie hay — 4 pounds
 Cottonseed cake — 1 pound

Wheat or Oat Pasture

Cottonseed hulls — 10 pounds
 Cottonseed meal — ½ pound
 Straw — 7 pounds
 Molasses — 3 pounds
 Cottonseed meal — ½ pound
 Corn fodder — 7 pounds
 Molasses — 3 pounds.
 Cottonseed meal — ½ pound

RATIONS FOR WORK STOCK

A commonly used basic ration for horses at moderate work is as follows: prairie hay 10 pounds and oats 8 pounds. While this ration gives satisfactory results it would be more desirable if a slightly higher amount of protein was added. The following rations will be better balanced as to protein and mineral and should maintain the horses in better condition:

Alfalfa hay — 4 pounds	Prairie hay — 6 pounds
Prairie hay — 6 pounds	Silage — 12 pounds
Oats — 8 pounds	Oats — 8 pounds
Alfalfa hay — 5 pounds	
Wheat straw — 5 pounds	
Oats — 8 pounds	

If winter wheat or oats pasture is available it may replace the alfalfa hay or silage in the above rations. Green pasture is especially desirable for maintaining colts and young stock in thrifty condition.

Silage may be used satisfactorily as a part of the roughage in the ration of horses. The amount should be limited to 12 or 15 pounds daily and only good quality green silage should be fed. Moldy or spoiled silage will frequently cause colic or other digestive disturbances in horses.

RATIONS FOR HOGS

The problem of supplying a satisfactory subsistence ration for hogs during drouth is more acute than is the case with other classes of livestock since a part of the hog ration must consist of grain. Winter pasture will be a very important grain saver in the hog ration. Every effort should be made to have sufficient winter wheat or oat pasture to supply ample grazing for sows and gilts. A legume pasture would be even more desirable.

If it is impossible to supply pasture during the winter months, good quality leafy alfalfa hay may be fed in a rack or feeder with satisfactory results. If either pasture or alfalfa hay is fed, additional protein supplement will not be needed. About two pounds of grain per head daily should be supplied brood sows in addition to pasture or alfalfa hay. Corn or grain sorghums will be more desirable for the grain ration

than oats because of the extremely bulky nature of oats. While recent experiments have shown that it is not necessary to grind grain sorghums for fattening pigs where self feeders are used, this does not apply in case of brood sows that are not on full feed. All grains except corn should be ground for a limited ration of brood sows.

In the absence of green pasture or alfalfa hay a protein supplement should be fed. Tankage is the most satisfactory protein feed for hogs. It may be mixed equal parts by weight with cottonseed meal if greater economy is effected by so doing. A mineral mixture consisting of equal parts ground limestone, ground bone meal and salt should be fed free choice or mixed with grain if the grain is fed in the form of a slop. Approximately one pound of mineral should be supplied for each 100 pounds of grain.

RATIONS FOR SHEEP

If good wheat pasture or other winter pasture is available, together with wheat or oats straw very little additional feed will be needed to maintain breeding ewes in satisfactory flesh during the early part of the winter. It is always advisable, however, to supply ewes with one-fourth to one-half pound of grain per head daily for one month preceding the lambing period. Supplementary rations are suggested, however, for ewes having access to very limited green pasture or dry grass pasture or straw stacks.

Dry Grass Pasture

Silage 1 pound
Alfalfa hay — 1 pound

Silage — 1 pound
Prairie hay — .6 pound
Cottonseed meal — .2 pound

Turnips — 1.5 pounds
Alfalfa hay — .5 pound

Wheat Pasture

Prairie hay — .5 pound
Silage — .5 pound

Oat straw — .5 pound
Turnips — 1 pound

Add one-fourth to one-half pound of grain to each of the above rations before lambing if necessary to maintain ewes in flesh.

Note: It is highly important in all sections of Oklahoma that a mineral mixture be provided for sheep at all times. A recommended mixture is equal parts of ground limestone, ground bone meal and salt.

RELATIVE VALUE PER POUND OF VARIOUS FEEDS IN EMERGENCY CATTLE RATIONS

ROUGHAGES	Relative Value	CARBONACEOUS CONCENTRATES	Relative Value
Prairie hay	100%	No. 2 shelled corn.....	100%
Ground fodder	100%	Ground wheat	105%
Oat straw	90%	Ground kafir	95%
Cottonseed hulls	75%	Hominy feed	100%
Wheat straw	75%	Blackstrap	100%
Corn silage	40%	Beet molasses	75%
Sorghum silage	40%	Oats	85%
Turnips	20%	Ground barley	95%

To determine the estimated price value of any of the above feeds, multiply its percentage value by the current price of the standard feed listed as 100 per cent. It should be observed that alfalfa and other legume hay has a higher feeding value than prairie hay because of the protein content.

PROTEIN SUPPLEMENT SUBSTITUTES

Good quality, fine, leafy alfalfa hay used in the emergency cattle ration as a protein supplement to balance carbonaceous roughages is 50 per cent as valuable as cottonseed cake or meal. Used as a protein supplement, alfalfa hay at \$20 per ton is as economical as cottonseed cake or meal at \$40 per ton.

Tankage has been used to a limited extent in Oklahoma as a protein supplement to replace cottonseed meal in the fattening ration of steers and sheep. While good results have been secured in many cases, it appears that the proteins of plant origin, such as cottonseed or linseed meal are more satisfactory and economical for feeding steers and sheep. The value of such a substitution will depend upon the comparative price of cottonseed meal and tankage.

Winter wheat or oats pasture should be considered an important protein supplement. It will be observed in the rations listed previously that the amount of protein supplement such as cottonseed meal or alfalfa hay may be materially reduced where wheat or oats pasture is available. This effects a decided economy in the ration since the protein supplements are ordinarily much higher in price than non-protein rough feeds.

Note: All feeds sold in bags are sold under a guaranteed analysis. The feeder should study carefully the tag giving the analysis on all feed purchased.

