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A Guide to Feeding Miscellaneous Feeds to Beef Cattle
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A Guide To

**Feeding Miscellaneous Feeds
To Beef Cattle**

★ *Farm Produced and*

★ *Manufactured or Refined*

By Members of Animal Husbandry Department



Michigan State University
OF AGRICULTURE AND APPLIED SCIENCE
Cooperative Extension Service - East Lansing

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GUIDES FOR FEEDING MISCELLANEOUS FEEDS TO BEEF CATTLE

INTRODUCTION

Farmers have opportunities from time to time to use protein supplements, concentrates, and roughages that are not ordinarily used as feeds for beef cattle. There are also new feeds that are continually coming into the beef feeding picture. Most farmers know how to feed common feeds such as soybean oil meal, corn, and hay; or they know where to obtain quite readily information on the use of these feeds. However, information about the use of such feeds as urea, beet tops, cull potatoes, or sunflower silage is usually not so easily found.

The purpose of this bulletin is to provide information about the form in which to feed, the amount to feed per animal per day, the approximate feed value, and remarks on any precautions that apply in using these feeds.

Generally, a beef feeding enterprise should not depend solely on use of these miscellaneous feeds. They are better suited as a substitute for part of a common feed ration. It is most practical to use bulky feeds when the farm is located near the place where the feeds are produced. When considering the use of one of these feeds, its cost should be compared with the cost of the feed it might replace.

When using an unusual feed for the first time, it is advisable to try it on a limited scale, or to check with a person who has previously used the feed to learn of any problems that might arise from feeding it.

Special acknowledgment is made to Leonard J. Hill, formerly Assistant County Agricultural Agent at Large, for his work in compiling material for this bulletin and preparing the original manuscript.

GUIDES FOR FEEDING MISCELLANEOUS FEEDS TO BEEF CATTLE

Manufactured or Refined

TABLE I

FEED	FORM IN WHICH TO FEED	AMOUNT PER ANIMAL PER DAY	APPROXIMATE FEED VALUE	REMARKS
APPLE POMACE	Silage.	6-7 lbs., gradually increasing to 25-30 lbs. Cows up to 35 lbs.	50% of the value of corn silage, depending upon the balance of the ration.	Usually fed as substitute for corn or grass silage. Sometimes fed out of a stack or trench silo.
BREWERS' GRAINS (wet)	Fed direct from brewery.	20-30 lbs. of drained grains.	13-15% of the value of corn.	Can be stored in silo if salt is added at rate of 25 lbs. per ton of grains. Best to haul and feed directly. Grains usually come from barley.
BREWERS' GRAINS (dry)	Part of grain mixture.	3 lbs. as part of protein and concentrate mixture.	55% of the value of corn.	Too bulky and costly to be used in fattening ration.
CORN GLUTEN FEED	Part of concentrate and protein supplement.	4-8 lbs. in concentrate mixture.	86% of the value of corn for fattening, as a part of concentrate mixture.	Consists of outer layers of corn kernel and includes both gluten meal and corn bran. Has 25% protein.
CORN GLUTEN MEAL	Feed as part of protein supplement mixture.	1 to 1½ lbs. as protein supplement.	Value is less than other protein supplements such as soybean and linseed oil meal.	When outer hull on corn bran is separated from gluten layer, the remaining gluten layer is called gluten meal. Has 20% protein.
BEET PULP (wet)	Fed similar to silage.	Best results when fed with hay. 25 lbs. wet when fed with hay. Best used in cow ration.	50% of the value of corn silage.	Expensive for beef cattle if hauled very far. Very deficient in calcium and phosphorus. Cattle should have limestone and bone meal in ration. Not recommended for fattening cattle.
DISTILLERS' GRAINS	Feed as protein supplement.	1½ to 3½ lbs., depending on type of ration and weight of cattle.	65% of the value of soybean oil meal.	Low in palatability.

TABLE I (continued)

FEED	FORM IN WHICH TO FEED	AMOUNT PER ANIMAL PER DAY	APPROXIMATE FEED VALUE	REMARKS
MOLASSES (beet)	Sprinkled over feed as appetizer.	$\frac{1}{4}$ to 1 lb. diluted with equal parts of water. Slightly larger amounts may be fed when price per ton is decidedly below price of corn.	75% or more of the value of corn if fed only as appetizer. Value may drop to 67% or lower if larger quantities are fed.	Is laxative and cattle must be watched for scouring. If not fed in excessive amounts, beet molasses is similar to cane molasses.
DEHYDRATED POTATO MEAL	Feed as part of concentrate mixture.	Fed as 40 to 50% mixture of grain ration.	Approximately equal to corn if meal does not make up more than 40 to 50% of grain mixture.	
REFUSE SCREENING	Feed finely ground.	$\frac{1}{4}$ of concentrate mixture.	Varies in quality. Good quality screenings equal to oats. Poorer quality resembles straw in feeding value.	If not finely ground, noxious weed seeds will not be killed.
SUNFLOWER SEED MEAL	Protein supplement.	About same as soybean oil meal.	About equal to soybean or cottonseed meal.	Animals do not show bloom, but do produce good grade carcass.
UREA	As part of protein supplement mixture, and mixed carefully with corn.	Should not make up more than 5% of protein supplement, or 8% of total concentrate mixture, or 1% of total dry matter.	One pound urea plus 8 pounds corn similar to 8 lbs. soybean meal as part of protein supplement mixture.	Usually toxic unless fed very carefully. Usually not available except as a mixture in supplement.
PEA VINES	Usually fed as a silage from stack.	Fed same as hay crop silage.	Less valuable than corn silage for energy, but contains more protein than corn silage.	No preservative needed to ensile.
SWEET CORN CANNING WASTE	Usually ensiled and fed as silage.	Fed same as corn silage.	About same value as corn silage made from immature field corn.	No preservative needed to ensile.

GUIDES FOR FEEDING MISCELLANEOUS FEEDS TO BEEF CATTLE

Farm Produced

TABLE II

FEED	FORM IN WHICH TO FEED	AMOUNT PER ANIMAL PER DAY	APPROXIMATE FEED VALUE	REMARKS
APPLES	Whole or finely chopped. Best as silage (80 parts apples, 20 parts alfalfa hay).	25 lbs. per cow. No recommendation for use with fattening cattle.	Up to 50% of the value of corn silage when fed as hay-silage mixture.	Should have free choice of minerals. Danger of choking when fed whole. Relatively high handling cost.
BEEF TOPS	Self feed in field, or cook in field and then hand feed in dry lot. Feed legume hay, corn stover or straw with beet tops.	8-30 lbs. if hand fed, depending upon size of animal and whether fattening.	50% of the value of grass hay.	Grain and protein supplement needed to fatten cattle. Bloat may be problem when tops are frozen. Not practical to self feed, as tops are laxative. Oxalic acid may make calcium unavailable. 2½ lbs. ground limestone per ton of feed will correct this problem.
BEEF TOP SILAGE	Silage should be fed with legume hay, corn stover or straw as mixture.	8-30 lbs., depending upon size of animal and whether fattening.	50% of the value of corn silage.	Fresh tops must be wilted before ensiling. Need grain and protein supplement to make satisfactory gains for fattening steers. Add limestone at above rate when silage is fed.
BUCKWHEAT	Should be ground and mixed with other grains.	Should make up not more than 1/3 of grain mixture.	10-15% less than oats when fed as 1/3 of grain mix.	Low quality protein. Also deficient in vitamins A and D and calcium. Be sure to use good quality sun-cured legume hay in the ration.
CARROTS (cull)	Whole or sliced. Feed with roughage and grain.	Usually 5-10 lbs. as succulent feed, depending upon size of animal.	12% of the value of crushed barley.	Store 3 to 4 weeks before using. Fresh carrots cause scouring.
NAVY BEANS (cull)	Best when cooked, but can also be fed raw.	Cooked 3 to 4 lbs.; raw 1 to 2 lbs. Used in fattening grain ration.	85% of the value of barley.	Scouring may occur if fed in amounts that are more than 15% of total ration.

TABLE II (continued)

FEED	FORM IN WHICH TO FEED	AMOUNT PER ANIMAL PER DAY	APPROXIMATE FEED VALUE	REMARKS
OAT SILAGE	Silage made of oats cut in dough stage.	Feed same as hay crop silage.	Nearly equal to legume-grass silage as a wintering feed.	Yields 4 tons of silage per acre. Must be chopped finely to exclude air from silo.
POTATOES	Raw—whole or sliced.	3 to 4 lbs., gradually increasing to 20 lbs. as part of the ration.	About 75% of the value of corn silage, 22% of the value of shelled corn or 33% of the value of alfalfa hay.	Square-cornered chopped pieces are apt to cause choking. Do not feed frozen. Sunburned, decomposed, or sprouted potatoes should not make up more than 10% of potatoes fed. Keep steers heads down while eating to prevent choking. Over-feeding will cause scouring.
POTATO SILAGE	1. 90% chopped potatoes, 7% chopped alfalfa hay, and 3% ground corn. 2. 98% chopped potatoes, and 2% ground corn.	Up to 30 lbs., depending upon gain desired and size of animals.	About 75% of the value of corn silage.	Potatoes and potato silage deficient in protein and minerals. Ration should be fortified or supplemented.
RYE	Ground or crushed and mixed with other grains.	10-20% rye, remainder corn in grain ration. Used as fattening ration.	Nearly equal to corn when fed in mixture.	Low in palatability, especially if contaminated with ergot. Also deficient in vitamin A.
SOYBEANS	Ground or whole.	1½ lbs. for calves, 2 to 3 lbs. for yearlings and 2-year old.	About equal to oil meals if fed for a period of not more than 2 months.	Usually fed when beans are unmarketable. Excessive amounts cause scouring and cause animals to go off feed. Grind often to reduce rancidity.
SPELT & EMMER (spring speltz)	Ground and mixed with other grains.	50% spelt with remainder corn during first half of fattening period. Not more than 30% spelt in grain mixture during last half of feeding period.	Similar to oats.	Feed mixture same as corn alone. Feed same as oats for breeding herd.

TABLE II (continued)

FEED	FORM IN WHICH TO FEED	AMOUNT PER ANIMAL PER DAY	APPROXIMATE FEED VALUE	REMARKS
SUNFLOWER SILAGE	Silage— $\frac{1}{3}$ of silage ration. ($\frac{1}{3}$ sunflower silage, $\frac{2}{3}$ corn silage or hay crop silage.)	When fed as silage mixture should be fed same as corn silage.	65-75% of the value of corn silage (lower palatability and less T.D.N.) when fed as mixture.	A substitute for corn in areas in state where season is too short for growing corn. If fed alone, it is quite unpalatable and may cause constipation. Harvest for silage when $\frac{1}{2}$ to $\frac{2}{3}$ of heads are in bloom. Should include alfalfa hay in ration.
SWEET CORN STOVER	Stover or silage. Best as silage.	Fed same as corn stover or silage.	About same as corn silage made from immature field corn with little grain.	Stalks should be permitted to mature somewhat after ears are picked, but should not be permitted to get too dry.