



**FOOD PROCESSING WASTES AND BY-PRODUCT FEEDS**

The best example is the cattle feeder who was feeding some potato chip waste, but noticed that his cows went off feed every Monday. A little investigation found that the processor dumped his grease in with the waste every Friday, thus throwing the cattle off feed. In some cases the products that are available may vary considerably from one day to the next. This variation must be accounted for in the cost of the product and in the formulation of rations.

• The presence of foreign objects: this is particularly important when feeding waste material from canneries. Metal and/or glass objects will often find their way into the waste in these operations. Feeders who consistently use these products will have a strong magnet attached to an auger to capture the metal objects. Some consideration should also be given to material that may have been treated with pesticides or other chemicals that could still be present in the material.

• Adaptability to a feeding system: there are some products that may simply be more trouble than they are worth. A good example is the cattle feeder that depends on an auger system to deliver feed to a mixer wagon. One such feeder I

heard of tried using some waste candy bars and spent a lot of time cleaning candy out of his augers. Moisture level of the feed is also an important consideration, particularly because dry matter intake could be compromised when other high moisture stored feeds are part of the ration.

• Storage life and requirements: the moisture content of many of these feeds dictates oxygen-limiting storage for any length of time. This facility may not be available. Temporary storage, such as in silo bags, is always a possibility, but some byproducts will require the addition of some dry material to make the bags work properly. Daily supply of some products, such as cull potatoes, may be small enough that no storage is needed.

• Ration limitations: because of a number of factors, many by-product feeds have a maximum ration value. The following table shows some commonly used by-product feeds and their maximum dry matter value of the ration:

By-Product Feed	Maximum Ration	Dry Matter %
apple pomace	25	
broiler litter		35
fresh carrots		20
wet corn gluten feed	50	
dry corn gluten feed	90	
cottonseed hulls		40
thin stillage	10	
bakery waste	20	
wet brewers grain		30
dry brewers grain		30
cookies	25	
cull beans		25
potato byproduct		15
whole soybeans	25	

• Fermentation rate: many byproduct feeds have high energy values and may be cost-competitive with corn. There is a difference, however, in the source of the energy. Potato chips, for

example, have a high energy value, but the source of the energy is fat and high starch. This changes the fermentation rate of these feeds for ruminants. Feeds with higher fermentation rates require more precise ration formulation, possible additions of sodium bicarbonate, and better bunk management.

• Opportunity costs: the value of any of these feeds is based on its comparable value with a traditional feedstuff. Some byproduct protein feeds are of the "high by-pass" variety and would have an advantage in rations under certain circumstances. For the cow herd, the protein values on a unit of crude protein must be compared with a conventional source such as soybean meal. Be sure to include all the costs of using the product including additional transportation, storage, feeding, labor, and "aggravation" factors.

Some specific feeding management to consider:

• Watch out for glass and metal

history of herbicide and pesticide use on fresh vegetable and fruits. For example, frosted vegetables that were recently sprayed with a pesticide may have excessive residue.

• Poultry litter may contain high levels of some heavy metals, particularly copper. Many areas already have high levels of copper in the drinking water, and this could increase the intake of copper to toxic levels. Have the litter analyzed for nutrient content as well as copper levels.

• Corn gluten feed usually contains high levels of phosphorus and care must be taken to be sure the calcium:phosphorus ratio is correct when using high amounts of this feed in the ration.

• Potato chips are high in salt, so care must be taken to regulate the amount of the material in the diet to no more than 15-20 percent. This will prevent problems with ionophore use with the high salt levels, as well as regulate fat content in the diet.

Many food processors are paying for the removal and disposal of their waste. Much of this material has value as cattle feed, but care must be taken to account for all of the costs of its use.



in canned vegetable waste.

• Do not mix urea with apple pomace and ensile the material. This has caused abortions when fed to pregnant cows.

• Know something about the

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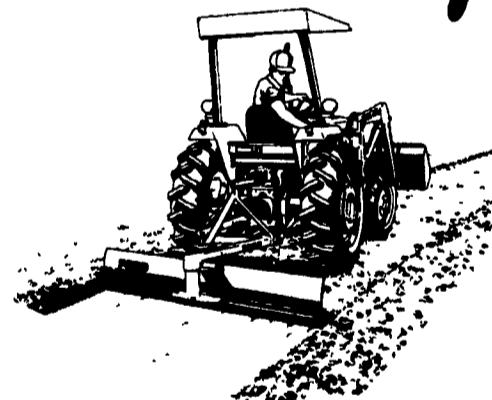
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