FEEDING POTATO PROCESSING WASTES AND CULLS TO CATTLE

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The waste products from processed potatoes are a disposal problem for the processors but a valuable source of feed for the livestock industry. Culls potatoes and, in some years, surplus production of potatoes are a source of high-energy feed.

NUTRITIONAL VALUE: All potato products are an excellent source of energy for ruminant animals. Rations high in potato content must be supplemented with protein, minerals, vitamins and a fiber source.

Potatoes are a wet feed, usually containing only about 20% dry matter. Therefore in order to get as much dry matter from potatoes as from grain you would have to have 450 pounds of potatoes to equal 100 pounds of grain. Potatoes are primarily a source of energy. On a 100% dry matter basis they would have 81 to 82% Total Digestible Nutrients and only about 10% protein.

They are relatively low in minerals, particularly calcium and phosphorus. You will need to monitor ration sulfur levels because of the low protein content and because one-third or more of the crude protein is in the form of non-protein nitrogen and only 60% of the total may be digestible. Canadian scientists observed that potato pulp or meal that was dehydrated at high temperatures had practically no digestible protein. Potatoes are better suited for cows or yearlings than they are for calves.

Potatoes contain practically no fat and are not a good source of the fat-soluble vitamins A, D, and E. When supplements are formulated for rations containing high levels of potatoes, the amount of vitamins present in potatoes can be ignored and the total daily requirement provided by the roughage or supplement part of the ration.

Potatoes are practically devoid of fiber. A source of roughage is needed to maintain normal rumen function. A minimum of 2 pounds of roughage per day is recommended. Because of the high moisture content of many potato products, rumen fill can limit performance and you may need to feed additional roughage or grain. The optimum dry matter content is not known, but it probably should not be less than 25 percent when feeding wet product.

METHODS OF FEEDING: One of the ways to feed potatoes is to spread them on the ground at least six inches thick and make sure they are there in surplus so that when the cattle come to eat there is not competition among them and there will be less chance that they will try to gulp down a small potato and choke. There are other ways that can be used in feeding potatoes, particularly if you want to try to limit the intake of potatoes and balance it with grains and roughages. One is to use a bunk with a rail about two and a half to three feet above the bunk to prevent the cattle from raising their head while they are eating potatoes. As long as their heads remain down there is little chance of choking. Another method is to use an electric fence and put a hot wire about 24 to 32 inches above the feed bunk. Some producers in the Northern Plains

spread them on pastures and let them freeze and thaw until they are mummified and then turn the cattle out on the pasture in the spring.

Because potatoes contain relatively high amounts of energy and moisture but are almost devoid of fiber, acclimate cattle to potatoes gradually. Start with two or three pounds a day and increase it two or three pounds a day per head until the cattle are getting the desired amounts. Potatoes are very laxative, so a good practice is to have some roughage available free-choice.

Fresh potatoes can substitute for at about one-half of the grain for finishing cattle. Yearling steers will take up to 60 pounds of fresh potatoes a day without going off feed. Dried potato meal may make up 20 to 25 percent of a growing-finishing diet.

POTATOES FOR SILAGE: When potatoes, which contain about 80% moisture are ensiled for cattle, it is recommended either (1) that 20 to 25 pound of dry hay, straw, or chaff be run through the silage cutter with each 100 pounds of potatoes, or (2) that 1 ton of corn silage be chopped with each 500 pounds of potatoes. Frozen and sprouted potatoes should not be ensiled. Potato processing wastes can be ensiled in the same manner as regular potatoes.

Either of the above methods recommended for ensiling potatoes for cattle is equally adapted for the preservation of other high-moisture crops, such as apples, beets, pears, tomatoes, cauliflower, kale, and trimming wastes from market vegetables, provide the added forage is in proportion to their respective moisture contents. Cabbage, rape, and turnips should not be ensiled, as they make unsatisfactory, watery, fowl smelling silage.

HANDLING WET POTATO WASTES: The volume, dry matter, and consistency in waste can vary from day to day. The product may be trucked from the plant and stored in pits or tanks at the farm or feedlot. The material may be dumped into one end of the pit and removed from the other end so that some mixing takes place and fermentation has time to neutralize the alkali.

Different methods are used to get the slurry from the pit to the animals. In large operations it can be pumped on top of the other ration ingredients in self-mixing trucks. In smaller operations the slurry may be handled with a front-end loader.

CHOKING: It is possible for cattle to choke on whole potatoes. Although some producers chop the potatoes before feeding, few difficulties occur feeding whole potatoes. The key is keeping their head down, the throat extended, while they are consuming the potatoes. Potatoes that are frozen solid should not be fed because animals can not chew them and are likely to choke while attempting to swallow then whole.

GLYCOALKALOIDS: Potato sprouts and sunburned (green colored) potatoes contain toxic glycoalkaloids and should not be fed in large amounts to animals. High concentrations of sunburned potatoes should be fed with care, sprouts should be removed, especially if they have been exposed to sunlight. The concentration of the toxic compounds is increased by exposure of the sprouts or peelings to light in warm, moist conditions. Animals have been poisoned by eating peelings and sprouts from old potatoes that were left exposed to the sun. Signs of toxicity are

staring eyes, dilated pupils of the eye, trembling, staggering, weakness, and sometimes convulsions.

PESTICIDES: Cases have been reported of dairy and beef cattle picking up pesticide residues by eating contaminated potatoes. If pesticide recommendations are followed, there is little danger from pesticide residues.

FAT: Most potato products have little fat but culled french fries may contain up to 30% fat in the dry matter. High fat diets can cause rumen digestion problems.

URINE PRODUCTION: Feeding high levels of fresh potato product will result in high levels of urine production. This may create challenges in keeping the cattle dry.