

Pressed sugar beet pulp for dairy cattle rations

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Beet pulp is the solid residue after extracting sugar from sugar beets. Although dried beet pulp is a popular component of many dairy rations, the drying process is costly as it consumes large quantities of fossil fuels. As an alternative to drying beet pulp, western sugar processors are evaluating the option to sell pressed pulp to dairy and other livestock producers.

Pressed beet pulp contains 20 - 25% dry matter, limiting the distance it can be transported economically. Nevertheless, pressed beet pulp is a valuable feed—high in energy (85% of the energy value of corn), and low in protein (7 – 10% crude protein). Pressed beet pulp is considered a nonforage fiber source and may be used to partially replace forage in dairy cattle rations at a rate of 10 to 20% of the ration dry matter. Higher levels may reduce dry matter intake. According to Utah State University research, dairy cattle fed a total mixed ration with either pressed beet pulp or dried beet pulp exhibited no difference in milk yield or composition. A recent University of Idaho study compared total mixed rations with and without pressed beet pulp on a commercial dairy. Pressed beet pulp replaced corn silage in the test total mixed ration. Milk yield and composition data are currently being analyzed.

After mechanical processing, pressed beet pulp is warm. If stacked in piles, pressed beet pulp quickly begins to ferment unevenly, becoming unstable and unpalatable for livestock. However, pressed beet pulp can be successfully ensiled in silage bags or bunker silos. For best results, French researchers suggest ensiling should be completed within 24 hours of processing, and bunker silos should not be greater than 6.5 ft in height and 26 ft in width.

Why is it necessary to ensile pressed beet pulp quickly after processing? Because warm temperatures (104 to 122 degrees F), coupled with an anaerobic environment, favor the development of lactic acid bacteria. Lactic acid bacteria ferment soluble sugar, resulting in acidification and a decreased pH, thus inhibiting further growth of microorganisms and preserving the silage.

According to French researchers, the dimensions of the bunker silo should allow for sufficient cooling of the silage mass after fermentation, and daily removal of 4 –7 inches from the silage face. When bunker silos larger than 6.5 ft in height and 26 ft in width are used, cooling of the pressed pulp is slowed, causing decreased silage quality. Furthermore, crumbling of the face occurs, allowing growth of undesirable bacteria.

The future of pressed beet pulp in dairy rations is promising for some dairy producers, but uncertain for others. The low dry matter of pressed beet pulp limits the distance it can be transported, thus restricting use to dairies in the proximity of sugar beet processing plants. Limited availability of dried beet pulp in the future from western sugar processors may cause significant ration challenges to nutritionists and producers on dairies located long distances from sugar beet processing plants.