



CATTLE SENSE

Information that makes sense helping you make cents

No. 135 January 2012

Dr. Cathy Bandyk

QLF, Dodgeville, WI 53533

/// Molasses, Part 2: Nutritional Value



Happy New Year! According to all the doomsday predictions, 2012 is our last chance to celebrate this transition . . . But just in case the world *doesn't* end in a matter of months, I think I will keep focusing on managing for the future, and on compiling and sharing information I hope is of value to beef producers.

Last month we reviewed some molasses basics: definitions, standards, characteristics, and general uses. While that may provide some useful background, what really matters is the nutritional contribution that molasses and molasses-based feeds can make to an animal's diet.

Typical analytical values are shown below. These concentrations can vary due to sugarcane growing location and conditions; plant maturity at harvest; sugar mill efficiency and use of manufacturing aids; crop year; and, of course, Brix. Published "book values," unless otherwise indicated, will represent molasses that meets the AAFCO definition of *not less than 43% total sugars expressed as invert and not less than 73% total solids*.

TYPICAL ANALYTIC VALUES, CANE MOLASSES								
DM, %	TDN, %	NEm, Mcal/cwt	NEg, Mcal/cwt	CP, %	Calcium, %	Phosphorus, %	Potassium, %	Ash, %
73	74	78	53	5	.9	.09	4	12-14

Molasses has been used as a livestock feed for more than 100 years, serving multiple roles in animal diets: nutritional contribution, palatability enhancement, nutrient density, dust control, and improved physical characteristics of mixed rations. Research as early as the 1950's (Burroughs et al., 1950; Bentley et al., 1954) showed that cane molasses increases rumen microbial activity. Because of its positive impact on microbial growth and action, molasses is also utilized in many commercial fermentation processes.

In beef cattle diets, molasses and molasses-based feeds are typically included for one or more of the following benefits:

- ◆ Sugar energy for rapid carbohydrate availability;
- ◆ Growth factors such as branched-chain fatty acids to stimulate rumen microbes;
- ◆ Palatability that encourages every animal to eat;
- ◆ Natural source of key essential minerals, including relatively high natural levels of potassium;
- ◆ Cost-effective, practical and effective carrier for NPN, minerals, vitamins, and additives;
- ◆ Better mix, and less separation and animal sorting, of mixed diets;
- ◆ Production benefits backed by research.

Numerous research trials have followed the early work cited above, evaluating the potential role of molasses in a range of diets, and for diverse classes of animals.

Location and Authors	Cattle and Diets	RESULTS
University of Florida, Pate et al., 1985	Beef cows grazing St. Augustine grass	Molasses supplementation during breeding: 8% increase in lb calf weaned per cow. Molasses during calving AND breeding; 12% increase
University of Florida, Arthington et al., 2004	Yearling beef heifers, winter pasture and hay with molasses slurry or mids-based range cubes	Two year average: heifers receiving molasses exhibited a 50% improvement in breeding rates
Louisiana State University, White et al., 1973	Steers, rice straw-based diets	Increasing levels of molasses supplementation increased diet digestibility up to 26%, and fiber digestibility almost 20%.
USDA Forage Research lab, Broderick and Radloff, 2004	Lactating Holstein cows receiving typical TMR diets; replace 0, 3, 6, or 9% of corn with molasses.	Including molasses in the diet increased dry matter intake and digestibility, and yield of FCM.
Kansas State University, Miller et al., 2005	Holstein cows receiving a high forage diet during a 60-day dry period, with or without molasses substituting for corn at 3.7% of the ration	During the first 30 days of the subsequent lactations, heifers that had received molasses gave 8% more milk; cows fed molasses increased milk production 15%.
Purdue University, Hatch and Beeson, 1972	Hereford steers on a finishing diet; with or without molasses substituting for 10 or 15% of corn	Molasses addition resulted in increased N retention, and improved diet digestibility and energy yield.

Molasses is obviously a versatile and valuable component of many cattle diets. In 2012 – and hopefully beyond! – it will be worth evaluating the potential fit of this sometimes-overlooked feedstuff in your nutritional program.

If you are headed to the 2012 NCBA Convention and Trade Show, be sure and stop by to see us in booth #344. We will be giving away five iPads – one more way to stay connected to the resources and information that are key to success in today's cattle business!