

umes from the small-seed box, and grass alone or with flax from the main drill box works well.

(5) The bacterial inoculum should be applied **wet**. Follow directions on container, or mix seed and bacteria in dry state, then carefully sprinkle on skim milk while mixing until bacteria are sticking to each seed but not so wet that "balls" of seed form. The skim milk acts as a "sticker" as it dries, gluing the bac-

teria to the seed so the bacteria do not "sift out" in the drill box. The mixing is done very easily on a tarpaulin or square of canvas so that seed can be rolled about by movement of the canvas.

(6) Follow directions on bacterial inoculum and fungicide containers carefully. See Extension Service Circular A-209 for further details on seeding techniques for small-seeded grasses and legumes.

CANE MOLASSES

For Dairy Cows

By C. G. M. Edgerly¹

Cane molasses has been used extensively as a feed for dairy cows. Just what is its value and what part should it play in dairy cattle feeding? When can molasses be used profitably by the dairy cattle feeder? These and other similar questions are some that constantly face the dairyman.

Molasses has been used in most mixed formula grains which the dairyman purchases. In such feeds the molasses content usually has been no more than 5 to 10 percent of the mixture. Adding molasses to such feeds usually is done to add to the palatability and to reduce the dust content.

In evaluating molasses in such mixed feeds, or in the use of farm mixed feeds, a few of the characteristics of cane molasses should be

kept in mind. Cane molasses is a by-product of the sugar industry and as such has a high degree of palatability to dairy cattle. Cattle relish molasses and there is no difficulty in getting them to consume fairly large amounts. Molasses is mildly laxative, which is beneficial when fed with feeds that tend to be constipating. The protein content of molasses is low, usually 3 percent or less. This protein is not usually of a digestible nature, so molasses is

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considered to have no digestible protein. The total digestible nutrient content of molasses is lower than the grains as it has a higher water content. The digestible nutrient content is approximately two-thirds that of corn.

Cane molasses is rich in the vitamins niacin and pantothenic acid, low in thiamine and riboflavin and has little or no vitamin A or D.

Molasses may have its highest value when a small amount is used to induce stock to eat more poor quality roughage. This value, however, is of questionable importance to the dairyman unless he is faced with a serious shortage of roughage.

When molasses is used at a level of 10 percent or less of a mixture of palatable grains it will have a feeding value nearly equal to that of corn. When larger proportions of molasses are added to the grain mixtures the value of the molasses may decrease rapidly. Work done at the New Jersey Experiment Station, feeding one half of the total digestible nutrients in the grain as molasses, resulted in a reduced yield of milk and fat.

When the percent of molasses in the feed is too great there appears to be lowered digestibility of some of the other feeds, particularly the roughage. This may be due to the activity of the micro-organisms in

the rumen as they tend to feed on the sugar content of the molasses rather than to break down the fiber content of the other feeds.

How much should molasses be worth to the dairy farmer, or how much can he afford to pay for molasses? If he is feeding palatable feeds to his dairy cows and has the facilities to mix the molasses with his grains he can pay the same as he would for corn. This value is true only as long as he limits the quantity to no more than 10 to 15 percent of the mixture. If he has to pay \$1.25 a bushel for corn he cannot afford to pay more than \$13.10 for a 50-gallon drum of molasses. When molasses is fed at a higher rate, the amount he can profitably pay is correspondingly less.

At times the value of molasses may be higher. When many unpalatable or very dusty feeds are being fed there may be added value in the use of molasses. In times of shortages of roughage, molasses will aid in getting cattle to eat more poor quality roughage and to more completely consume the available roughage. It should be remembered that these types of feeds are not the desired feeds for dairy cattle.

Beet molasses is of equal value to cane molasses in the feeding of dairy cattle. However, do not feed too much beet molasses as it tends to be more laxative than cane molasses.

