It can be noted in Table 1 that there was no change during storage in the sugar composition of beets receiving the preharvest foliar application of maleic hydrazide, while the average percentage of sugar in control beets was reduced by more than 4% of the original. Corresponding weight losses were more than 9% in controls, with, again, almost a negligible loss in the bin of treated beets. Finally, a loss of 13.06% of the total original sugar, arising from sizeable losses in both total weight and composition, was realized in the controls, compared with 0.72% in the beets receiving the preharvest spray of maleic hydrazide.

The reduction in sugar losses during storage of beets harvested from plants receiving a preharvest foliage spray of maleic hydrazide can in part be explained in that practically all top growth, root growth, and storage breakdown was eliminated. Simultaneously, considerable growth and breakdown occurred with beets in the control bin. Of equal interest was the fact that the average temperatures within the bin containing the beets treated with maleic hydrazide ran several degrees cooler throughout the 35 days storage (Fig. 1). This is of significance in sugar beet storage since it appears likely that maleic hydrazide reduces respiratory losses by a partial inactivation of one or more of the dehydrogenases (2) and slows down all metabolic activities resulting in the destruction of sugar.—S. H. Wittwer and C. M. Hansen, Departments of Horticulture and Agricultural Engineering, Michigan State College, East Lansing, Mich.

References


SUGAR VERSUS THE INTUITIVE CHOICE OF FOODS BY LIVESTOCK

When grazing animals feed in a pasture, their droppings tend to be distributed irregularly in individual piles. Grasses growing in the direct area of the piles are, therefore, much influenced by the manure. They grow more rapidly than uninfluenced grasses and thus form dark-colored bunches, which are practically never touched by the grazing animals. This has been a curious phenomenon for ages, and various theories have been evolved to explain it.

In the present connection the answer lies in the chemical analysis of manure-affected versus unaffected plants. Analyses of such plants over a period of years showed that the mineral-makeup patterns of the differently affected plants were significantly and constantly different from each other. The lush, manure-affected plants were always higher in protein, calcium, phosphorus, and iron; later on they were found to be higher also in fat and vitamins. The normally unaffected plants were always higher in silica, aluminum, and tannins; later on they were found to be higher in tannins and sugar.

It has long been known that certain plants contain substances which are more or less repugnant to grazing animals. Two of these substances are marin and tannin. The former was found to occur in both instances to about the same extent—and thus was patently not an involved factor. The second, tannin occurred to the greatest extent in those plants which were readily eaten, it also could be considered to be a deterrent to palatability of the observations.

Continued study of the chemical make-up of the lush, manure-affected, and the normally unaffected plants is being made. It is expected that these investigations will provide a basis for determining the chemical entities of those substances which cause the various observations.