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Recommended Citation

Stewart, George, "Circular No. 57 - Economy in Harvesting Sugar-Beets" (1925). *UAES Circulars*. Paper 61. https://digitalcommons.usu.edu/uaes_circulars/61

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UTAH AGRICULTURAL COLLEGE
UTAH AGRICULTURAL EXPERIMENT STATION

Economy In Harvesting Sugar-Beets

By

GEORGE STEWART

During sugar-beet harvest the farmer has two big opportunities to increase his income from the beet crop. No great amount of extra labor is entailed in either case, and yet the profits are written in large figures. To neglect getting the most from beets at harvest time after a toilsome and expensive production seems wasteful. Farmers are urged to give full consideration to these two phases of beet harvest:

(1) The making of beet-top silage from fresh beet tops. Large yields of good quality feed may thus be secured.

(2) The preventing of losses in tonnage due to evaporation. Poor topping also causes heavy loss both to farmer and to factory.

Making Beet-top Silage

The ordinary method of leaving the tops on the land partly covered with dirt causes heavy losses in feed constituents. Pasturing the fields is also wasteful and somewhat dangerous. The tops soon begin to decay when partly covered with moist soil or even when left on the surface. Many animals are affected by decayed tops. In picking up the tops, animals are certain to get some dirt which has been found to be dangerous to horses, especially to colts. This trouble and most of the losses in feeding value can be avoided by making silage of the fresh beet-tops.

Farmers who plan to make beet-top silage should prepare a pit ahead of beet digging. A pit three to five feet deep and just a little wider than is necessary for a wagon to drive thru is made on well-drained land in such soil as will not cave in.

Both ends are sloped so that the team and wagon can go in at one end and out at the other.

When the topping of the beets begins, care is exercised to have the tops disposed of in such a way that they can be gathered easily with forks. At intervals of a day or two they are loaded on wagons with pitchforks and the dirt shaken out as much as possible. The wagon is driven into the pit and the beet-tops dumped on about a foot of straw. When about a foot or fifteen inches of tops are scattered over the bottom more straw is added, after which is added another layer of beet-tops. When the alternate layers of straw and tops are well-packed by driving over them and walking along the edges, the air cannot penetrate freely and little spoilage results. The straw absorbs the juice from the tops and keeps the mass from getting too wet. When the pit is well-rounded above ground, it is sealed (as if it were a potato pit) with straw and dirt or with beet-pulp.

It is highly important to have the tops fresh, to free them from dirt, to pack them well, and to seal the pit thoroly. Air will allow decay, and decayed silage is dangerous.

When fed along with alfalfa hay, good silage is nearly as valuable as alfalfa hay in proportion to its dry weight. It can be cut out of the pit with a hay knife and forked out in blocks, after which it is fed as is silage.

It is true the tops are valuable for fertilizer when left on the land, but there is nearly as much fertilizing value in the manure, and the feed obtained is clear gain for the labor.

Preventing Losses During Harvest

Several years ago a careful experiment on the losses of weight in beets during harvest was conducted near Ogden, Utah, and at Garden City, Kansas. Untopped beets were weighed and then scattered out on the ground and left for twenty-four hours. During this period there was a loss of slightly over 10 per cent in weight. The tops give off water rapidly by transpiration. During the first four hours this loss amounted to 7.1 per cent.

It pays to top beets at the earliest possible moment after pulling.

In another trial, topped beets were thrown into small open piles of about 50 to 60 pounds each and into larger piles of 300 to 400 pounds each. Neither was covered with tops. In about

seven hours the loss in weight was about 2.5 per cent from the small piles and 1.25 per cent from the large piles. In twenty-four hours the loss from the larger piles amounted to almost 5 per cent and in the smaller piles to about twice that much.

It is best to haul beets at the earliest possible time after topping. When they are left in the field even a few hours it pays to throw them into rather large piles.

In still a third trial, topped beets were made into piles of about 500 pounds each—half uncovered and half covered with tops. During five days the piles of uncovered beets lost 15.1 per cent and the covered piles 4.2 per cent. In a repetition of this experiment, the uncovered beets lost 14.1 per cent as compared with 4.8 per cent for the covered. During the first twenty-four hours of these tests the uncovered piles lost 3.6 and 2.2 per cent as compared with 0.5 and 0.7 per cent for the covered piles.

When beets are to be left in the field for more than a few hours, it pays to cover them well with tops.

Large piles of about fifty tons each lost only 4.1 per cent in the two months of November and December.

Beets left for a much longer time than a week or ten days begin to lose in sugar content by a chemical change called inversion.

Another loss of great seriousness both to the farmer and to the factory results from the delivery of poorly topped beets. Beet crowns carry salts which prevent the complete extraction of sugar. Under the present contract the farmer suffers about half of this loss and the factory the other half.

To leave part of the crown on beets causes loss both to farmer and to the factory.

The factory cannot pay for dirt. To haul in beets covered with dirt makes extra hauling for the farmer. The factory **must** make the tare high enough to cover the dirt. Then, the dirt must be hauled away by the farmer.