

New Developments in Beet Top Conservation with Machine Harvest

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Complete mechanical harvest of a dual purpose crop of sugar beets infers that both the roots and tops, which include crown, stems and leaves, are treated through the use of machinery for more complete utilization.

The physical properties of the sugar beet tops and the nature of the beet harvest have made the harvest of tops a paramount problem. Beet tops are a high moisture crop which often contact the ground after removal from the beet and are utilized during the harvest season when labor is fully engaged in the harvest of all farm crops.

Progress of the past decade in mechanical harvesting of the beet roots overshadows the progress made in mechanical harvest of beet tops but the eventual mechanization must be made of this proven feed for livestock. A sugar beet farmer is not fully mechanized for the fall harvest unless his mechanization program includes the harvest of beet tops for livestock feed.

Throughout beet growing areas, farmer-feeders value their beet tops to varying degrees and exert various methods to utilize them. The mechanical means range from a simple windrow operation through the use of a side delivery rake or windrowing attachment on the beet harvester to mechanically transporting the tops from the beet field to a storage place for curing and later use in the rations of livestock.

Many beet growers in the intermountain area follow their International harvester with a side delivery rake to windrow the tops and follow this operation with a dump rake to leave the tops fairly free of dirt and in a large pile or cock. The tops may then be pastured by livestock or ensiled. Formation of windrows or cocks helps keep the livestock from tramping the tops into the ground and also helps preserve their succulence and feed value.

A successful job of windrowing tops may be performed with a side delivery rake following most sugar beet harvesters.

The Marbeet Midget is equipped to leave the tops above the ground, free from dirt, and in a condition to enable a successful windrowing operation. This machine has a beet top conveyor belt which throws the tops to one side and out of the way of the tractor wheels and trailer cart.

Many farmers make good use of the land method and windrowing curtain of the International beet harvester. There are numerous **variations** using this method but the 4-row land method is typical. In working a field the harvester is started on the second row from the outside. As the tops are cut free they are picked from the topping disk by fingers and thrown to the left against the windrowing curtain. The curtain is closed while the harvester goes down this row. Reaching the end of the first row, the harvester is turned to the left and down the next row with the curtain

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still closed. Again the harvester is turned to the left to the outside row that was skipped and the curtain is opened. With another left turn at the end of the third row and with the curtain still open the fourth row is harvested and the tops from four rows are windrowed together.

The new 2-row John Deere beet harvester provides a cross conveyor whereby tops from two rows are delivered into a windrow just outside the right hand tractor wheel. This operation leaves the tops in ideal condition for later windrowing, cocking, and pick up for hauling into the feed lot.

As an aid to the International harvester, many farmers have attached a set of spiked wheels for moving the tops to one side so they are free of the tractor and harvester wheels. These wheels may be purchased or may be made by welding spikes on the rim of an old horse-drawn cultivator wheel and attached to the hydraulic control system of the tractor.

Many unique and successful systems of mechanical conservation of beet tops have been developed by farmers through the use of rebuilt and farm-built machinery. One such system is that of harvesting beets and tops with a rebuilt and converted Kiest beet harvester. The 4-row Kiest topping unit is followed by a spiked wheel side delivery rake which windrows the tops and moves them out of the way of the other equipment. Next the lifter-loader and the receiving truck remove the beets while the windrowed tops are well protected between these two units.

The top lifting and loading machine may be designed and built on the farm and under favorable conditions makes possible the saving of almost 100 percent of the tops. Pulled by a tractor, this unit picks up the tops on a rotating drum with steel prongs. The tops are thrown on a short conveyor belt which lies parallel with the rows. This belt carries the tops back to a long conveyor which runs at a right angle to the short belt. This belt in turn carries the tops to the right of the machine and into a truck that runs alongside.

If it is desired that the tops be left in the field, the arm of the top lifter may be lowered so that the tops are delivered to one side. A special trip action gate at the end of the delivery arm makes it possible for the tops to be delivered into cocks for better keeping. Hydraulic attachments are used to raise and lower the delivery arm and a similar hydraulic lift may be built under the truck bed to aid in the placement of the beet tops in the silo.

In some areas beet tops are conserved by baling, defoliating and dehydrating, and more efficient methods of handling beet tops are certain to be developed. Regardless of the method used in harvesting tops, the farmer must more fully utilize this proven livestock feed. Beet tops are excellent feed for livestock whether they are left in the fields in windrows or cocks, or hauled into the feed yard and fed as a part of the ration.