

Farm Mechanization FACTSHEET



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RASPBERRY CANE TOPPING MACHINE



INTRODUCTION

Conventional topping by hand is very labour intensive. Attempts at mechanizing this process have only been partially successful with the adapted sickle bar mowers. It has been found that the cuts made by the sickle bar are often not as clean and smooth as would be desirable. Ragged cuts can lead to cane dieback. Furthermore, it was found that the debris from the topping was dropping right into the middle of the bushes requiring hand removal of the debris at a later date. Significant labour savings can be realized with a topper that will provide a smooth cut and at the same time remove the prunings from the row.

In an effort to improve upon the reciprocating sickle bar mower, a European manufactured grapevine trimming bar was purchased under the D.A.T.E. (Demonstration of Agricultural Technology and Economics) Program. The cutting mechanism consists of a hydraulic motor that drives a V-belt that has specially designed knives attached to it. The rotating knives cut the canes against stationary teeth, much like the sickle bar. The belt and knives rotate continuously instead of the oscillating motion of the sickle bar mower. The belt is driven at a relatively high speed and this provides an excellent cutting action. The speed of the knives also imparts sufficient momentum to the cut canes to throw them clear of the standing canes. Adjustable gathering times can be used to lift canes into the cutter bar.

The cutting bar is custom mounted on a tractor just ahead and to the right of the cab providing excellent visibility. The motion of the knives and cut canes is away from the driver. The rotating knives are confined in a shrouded raceway for safety. A vertical

adjustment of 24 inches is provided by a hydraulic cylinder within two nesting rectangular tubes that slide one within the other. This allows the cutter bar height to be adjusted on-the-go.



RESULTS

The Raspberry Cane Topper developed and tested by the Resource Management Branch can be used to top canes once the canes have gone into dormancy. Topping prior to pruning (pretopping) has been found to make the main pruning operation much easier. Fall topping can also reduce the risk of primo cane breakage due to snow or ice loading in the winter time. Since the new primo canes are much shorter there is a reduction in bud damage due to rubbing caused by winds. Pretopping should be done at a level at least twelve inches above the final cane height. This will ensure that any winter dieback can be removed with the final topping.

Secondary wires used to support new primo canes can create some problems regardless of the mechanized pruning system used. These secondary wires, unless they are well secured, can ride upwards under windy conditions. When the wires are at this

higher level, it is relatively easy to cut the wires with the topper. Care must be taken to raise the machine or lower the wire prior to topping under these conditions. Very little damage occurs to the topper; however, the cut wires can mean some additional repair work.

After pruning, the final topping with the new raspberry cane topper is quick and very smooth cuts are achieved. Bunched and tied canes do not create a problem with the cutting action due to the high speed of the blades. The high speed of the blades imparts sufficient momentum to the debris to throw it gently between the rows.

The topper can be operated at an average speed of 3 to 4 miles per hour with relatively high field efficiency on longer rows. A working rate of approximately 4 acres per hour can easily be achieved.

FOR FURTHER INFORMATION CONTACT

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