

# Improving Mechanical Harvesting of Oregon Sweet Cherries (1970 Revision)

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## Growers' Return Directly Affected

Based on last season's results, use of mechanical harvesters in Oregon for sweet cherries picked for briners means a loss of revenue of at least 30% to growers. If the cash price for cherries delivered to briners is 20 cents a pound for No. 1 quality fruit, then mechanically harvested fruit at best will return only 14 cents a pound to the growers.

As compared to hand picked cherries, mechanically harvested cherries have on the average:\*

- ✓ Cherries with stems—only half as many;
- ✓ No. 3 grade—2 to 2½ times more;
- ✓ unclassified—2 to 3 times more;
- ✓ suitable for fruit cocktail—less than half as many;
- ✓ packout—6½ to 10½% less;
- ✓ handling and sorting labor in plant—50 to 100% more.

## Value of Cherries with Stems Attached

This "business" of cherries with stems attached is important to Oregon's cherry industry . . . more so than most of those not involved in selling brined cherries realize. The briners of cherries in Oregon compete with briners of cherries in other parts of the country who are closer to the major markets for quality maraschino cherries.

Approximately 50 to 60% of Oregon's brined cherry pack is sold as cocktail grade with stems attached at a premium price . . . and with the additional "premium" of the buyer taking a like quantity of stemless cherries from Oregon rather than stemless cherries from elsewhere.

If the briner has less cherries with stems attached to sell, it is doubtful that the briners in Oregon will

\* Industry figures based on operations before heavy rains of midharvest, presented by George Stadelman, Jr., at the January 1970 meeting of the Oregon Horticultural Society.

be able to sell the stemless cherries without a substantial decrease in price. And any decrease in price in the brined cherries will mean lower returns to growers of cherries in Oregon.

Getting only half as many cherries with stems attached from mechanically harvested fruit along with lower quality was the reason the Northwest Cherry Briners Association recommended that Oregon sweet cherry growers *not expand* the present volume of mechanically harvested cherries until further research and testing develop equipment and techniques that yield fruit of more consistent marketable quality than is now the case.

## Cherry Harvester Study at OSU

Now under way at Oregon State University is a three-year study on mechanical harvesting of cherries supported by the National Cherry Growers and Industry Foundation, Inc. One objective of the study is to determine how to make better use of existing mechanical harvesters. Another objective is to determine how existing mechanical harvesting equipment can be modified so as to improve their operations in securing (1) better quality cherries, (2) more cherries with stems on.

In charge of the study is Donald A. Backus of the Department of Agricultural Engineering. Assisting him in this study are others in the departments of Agricultural Engineering, Horticulture, Food Science and Technology, and in Extension.

## MUSTS for 1970 Mechanical Harvesting

If you are going to continue to use mechanical harvesters on part or all of your crop, you can minimize your losses by taking advantage of the experience gained from last year's operations.

✓ To get more cherries with stems attached, harvest early in the season and early in the day.

✓ To get less damaged fruit, do not let the operators overshake, for prolonged or additional shaking bruises



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and damages the cherries that do not drop off with the initial shaking.

✓ To keep dirt from getting into the stem end of stemless cherries, you must keep dirt out of the harvesters and bins. Do not retrieve cherries that miss the catching frame or fall on the ground, for a small amount of dirt can ruin a whole binful of cherries.

✓ When using mechanical harvesters with roll-out catcher frames, devise some means to remove the dirt that adheres to the underside of the frame that rests on the ground and is subsequently transferred to the top side when the frame is rolled up.

Experience last year has demonstrated the value of the suggestions made in Fact Sheet 166. They are restated in somewhat modified form in this revision to make them applicable to the 1970 season.

## 1970 Checklist

**Harvest early in the season.** Cherries that are to be brined should be harvested before they reach full maturity for two reasons: (1) more than twice as many cherries are obtained with stems attached; and (2) only a third as many culls have to be downgraded in the brined cherries. Briners may therefore request that cherries be harvested when they reach 13 to 15% soluble solids.

**Harvest early in the day.** Cherries that are to be brined should be harvested before noon. The firmer fruit obtained in the morning has more stems attached.

**Attach shakers correctly to trees.** Where limb shakers are used, attach the claw at a right angle to the limb. With trunk shakers, lubricate the two slip slings well so that all tendency to slip will be accommodated between the two slings instead of occurring between the rubber and the tree.

**Avoid overshaking.** Not only is most of the fruit obtained from prolonged shaking likely to be severely bruised, but additional shaking may result in permanent damage to the tree. Shaking for more than three to five seconds can be considered as overshaking.

**Keep harvester free of dirt.** Dirt from the orchard plus cherry juice equals mud. Mud finds its way into the

stem end of stemless cherries. Thus far, no way has been devised for removing this dirt from the cherries, and therefore they must be hand sorted and dumped as trash.

**Remove trash with blowers and hand sort.** Leaves and twigs and other debris shaken from the trees interfere with the handling of cherries at the briners. This debris has a clogging action on pumps used to transport the cherries, and this clogging action results in mechanical damage to the cherries. Someone should be stationed at the blower to continually check the blower separation operation and hand sort as necessary.

**Brine immediately.** Mechanical harvesting inevitably bruises fruit much more than hand picking. Bruised areas result in discoloration and other defects unless the cherries are brined immediately. Growers should see their briners for brining instructions.

Do not rehandle brined cherries until they have hardened sufficiently to resist mechanical damage.

**Keep dirt out of bins.** After bins are filled with brine and cherries, skin off floating trash, then cover to keep dirt out, especially if the bins are to be stacked. Otherwise dirt adhering to the bottom of the bin rails will end up in the cherries. Bin covers are essential to maintaining the quality of the harvested cherries.