Girdling Sweet Cherry Seedlings for Early Fruit Production*

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EARLY fruiting of seedlings is desired by the fruit breeder to permit close spacing and early evaluation of the seedlings. In the stone fruit breeding program at Prosser, Washington, apricots and peaches have fruited in the third growing season when planted at 5- by 15-foot spacings. Sweet cherries, on the other hand, normally do not produce fruit until the fifth growing season or later. Therefore, a means of inducing sweet cherry to fruit in at least the fourth growing season appeared desirable.

Tying down of leaders, as has been done commercially with young cherry trees in the Pacific Northwest to spread the tree structure, has seemed to induce early fruiting in some instances.

Several investigators have noted early fruiting of various fruit species as a result of girdling of trees or branches. Likewise, accidental girdling of young trees with machinery or by mice has been thought responsible for early fruiting.

Girdling and tying down of leaders, therefore, appeared to be the most promising ways of forcing early fruiting.

Methods

Seedling sweet cherry trees from controlled crosses at the Irrigation Experiment Station, Prosser, Washington were used for testing methods of inducing early fruiting. In early May, 1953, all the normal, vigorous trees having three or more leaders were selected from among 1500 seedlings available for this test.

One leader of each selected seedling was girdled by removing a 3/16 inch strip of bark about a foot above the base of the branch. The wound was covered with ½ inch grafting tape in each case.

A second leader on each tree was bent until the terminal was lower than its point of origin, and was then secured with string to the trunk of an adjacent seedling. When untied after about two months, this leader remained in a bent position.

The remaining leaders on each tree were left untreated as a check on the effectiveness of the two methods. Also, they served as protection against loss of the seedlings in case bending and girdling killed the treated leaders.

Results

Nearly 60 per cent of all the seedlings bore sufficient fruit for an evaluation in 1954, their fourth year. A considerably higher percentage of those leaders receiving the girdling and bending treatments than the untreated ones fruited.

Girdling often produced large clusters of fruit such as is illustrated in Fig. 1, while the bended and untreated leaders had few or no fruit. Where seedlings bore only a few fruit, these were invariably on the girdled leader.

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In the few cases where untreated leaders produced fruit, there was considerably more fruit on the girdled leader and also some fruit on the bended leaders. The fruits on the girdled limb were similar in size, color, and other principal characters to those on ungirdled limbs on the same tree.

It was found that the 3/16-inch girdle was ineffective on leaders larger than ¾-inch at one foot from their bases, presumably because the girdle healed too quickly. A wider girdle apparently would be indicated for young, rapidly growing cherry with leaders of such size.

The results obtained suggest that girdling in the third growing season is an effective method of forcing early production on sweet cherries. Girdling permits handling of seedlings at close spacing and facilitates early evaluation of seedlings in a breeding program. In the seedlings studied, fruit evaluation was made on seedlings just 4 years and 2 months after the crosses were made. The time required, therefore, is at least one year less than one could expect normally without girdling and only a year longer than that required for peach seedlings.

Observations over two years after girdling show no adverse effects on the seedlings. It is well to bear in mind that any evaluation of the first fruit produced is subject to considerable revision in later years.

Fig. 1. **Typical girdling (left) and ungirdled (right) leaders on a sweet cherry seedling in the fourth growing season, showing the fruitfullness induced by a 3/16-inch girdle made in early May of the previous season.**

Halehaven and Redhaven as Parents in Peach Breeding

While Halehaven has been a valuable peach commercially, it has had a secondary value that should not be overlooked. This variety has proved to be an outstanding parent in peach breeding at South Haven and other stations, especially for the transmission of bright red color and early maturity. Several new peaches being introduced by the United States Department of Agriculture and several experiment stations have Halehaven as a parent.

Redhaven hasn't been used in peach breeding for as many years, but it, too, is showing remarkable value as a parent. Sunhaven and Richhaven, just introduced, and two other varieties which will soon follow, all have Redhaven as a parent.—*Stanley Johnston, Superintendent, South Haven Experiment Station, South Haven, Michigan.*