

Sweet Cherry

HEDGEROW PLANTING

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An easy-to-train hedgerow planting of sweet cherries which begins bearing early and which can be maintained at a desirable height may have some advantages over current pruning and training systems.

IN THE PAST FEW DECADES many orchards in San Joaquin County have been started by budding the desired scion

variety on primary scaffold branches of the mahaleb rootstocks in August and forcing them the following year. The stocks are often budded in their second leaf in the orchard so the sweet cherry tops spread sufficiently, as shown in photo 1. In most orchards a standard budded tree is trained to a vase shape, as shown in photo 4. In both training systems the trees are usually pruned very heavily for

two to three consecutive seasons to force secondary and tertiary branches at desirable heights. Consequently, trees developed in these systems of training and pruning often require six to eight years before they begin to set a crop economically feasible to harvest.

The experimental hedgerow planting shown in photo 2 was started to study ways to reduce the cost of producing sweet cherries under present training systems. Some of these cost factors are: (1) the relatively long period required to bring cherries into production, (2) the high mortality rate of young trees, (3) the excessively tall trees which make harvesting slow and recruitment of pickers difficult, and (4) the shortage of skilled pruners to train young trees to desirable shapes.

1. Bing cherry trees high-budded to mahaleb rootstock, a common system in the Stockton-Lodi area of San Joaquin County, as insurance against "buckskin" virus. Note how high the secondary branching originates and the lateral distance between branches.



Mahaleb rootstocks

In the hedgerow system the mahaleb rootstocks were planted 4 ft apart in rows set 15 ft apart. Since the species tends to branch freely, the stocks were whip-grafted with three to six scions near the ground level. All shoots arising from the scions the following spring were allowed to grow. At the end of the first growing season these shoots were headed back at 2 ft to induce branching at this height. These trees were not pruned again until the end of the third growing season, at which time weak shoots near the top of the trees were removed.

The 4- by 15-ft planting distance was chosen after examining the frameworks of high budded trees (photo 1) and trees originating from single buds (photo 4); this revealed that the horizontal distances



2. Bing cherries (left photo) grafted on mahaleb rootstocks planted 4 ft apart—photographed in the second dormant season. 3. Right photo, same hedgerow Bing trees shown in photo to left, blooming in their fourth leaf. The trees were about 12 ft tall and 5 ft thick through the hedge.

between the bases of secondary branches varied between 2 to 4 ft. It was estimated that in an orchard planted 22 by 22 ft there may be as many as 500 primary branches per acre. Thus, the hedgerow system, by eliminating the trunk and primary scaffold branches, enables multiple-branched trees (comparable to secondary branches) to be started at the ground level. By branching the trees at the soil level the effective bearing volume was lowered by 4 to 5 ft. At the 4-ft spacing it would be equivalent to having an orchard with 726 primary scaffold branches per acre. In deep, well-drained soils, trees might be spaced 6 ft apart (484 trees per acre) to accomplish the same objectives.

Space factor

Another factor to consider is that the space the trees will occupy in the hedgerow 6 ft thick and 14 ft high is filled by the end of the fourth leaf, whereas, it requires eight to 10 years to fill the space allotted to trees planted 22 ft sq. Possibly due to early root competition, trees trained in the hedgerow were precocious; photo 3 shows the density and distribution of flowers in the fourth leaf. This 71-tree row produced 32 lbs of cherries in the third leaf and 310 lbs (185 lbs Bing and 125 lbs Van) in the fourth. While the number of cherries per tree was small in the early years, the fruits were borne low, and the trees were close which made harvesting economically feasible.

It then appears that this system, or some slight modification of it, offers numerous advantages: (1) Due to the minimal annual pruning required to establish the framework, the trees begin to bear early, (2) The fruits are borne low so

that the crop can be picked from the ground and a short ladder or from a low trailer for several years, (3) Apparently root competition prevents the trees from growing very vigorously so that trees can be maintained at a desirable height, (4) Experienced pruners are not required to train the trees, which can easily be mechanically pruned with a topping machine once the desired height is attained, (5) Sunburning may be reduced because the trees shade each other, (6) Branches bent by their crop load can be nestled in a forked branch of an adjacent tree, and by not pruning these fruitful branches, high yields should be sustained, (7) Space vacated by a loss of an occasional tree can be refilled readily without replanting a new one.

These advantages of low pruning cost and early bearing should offset some of the initial high tree and planting costs. Some disadvantages to this hedgerow system include problems with diseases. If a virus should infect a tree, the disease may spread more readily to nearby ones through natural shoot and root grafts. Mechanical harvesting by the usual shake-catch method is not possible, however, the system may lend itself very well to other approaches to fruit removal. Limb renewal to rejuvenate the trees may be difficult after the trees become old.

In this planting scheme a pollinizer variety, Van, was planted at every eleventh location in the row. If pollinizers were planted in every other row, offset by five trees, they would be 40 ft apart in the row and 36 ft apart between those in different rows.

Because this planting was small, relatively young, and of radical design, little is known about its potential. However, with the registration of herbicides for

cherries and the development of synthetic growth retardants for controlling vegetative growth, the system seems to have merit and promise for the growing of sweet cherries for fresh consumption.

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4. Bing cherry tree trained from a single bud into a vase shape. The secondary scaffolds branch at about 5 ft.

