

Four Simple Steps to Pruning Cherry Trees on Gisela and Other Productive Rootstocks

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Pruning and training trees on productive rootstocks, such as Gisela® 6 or 12, requires techniques that are completely counter to pruning trees on Mazzard rootstock. When producing cherries on Mazzard rootstock, orchardists must constantly think about how to encourage precocity and productivity in the tree, whereas when producing cherries on productive rootstocks, they must focus on reducing crop load and increasing vigor.



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Tree vigor is important because more leaves mean more carbohydrate production and larger cherries. The production of high-quality cherries requires a gross canopy leaf area-to-fruit (LA:F) ratio of at least 200 cm² of leaf area per fruit, which roughly translates to five leaves per fruit (Whiting and Lang, 2004). Trees with a lower LA:F ratio are unable to manufacture enough carbohydrates to produce premium cherries.

Pruning strategies for trees on productive rootstocks should focus on the following:

- Thinning cuts to remove pendant (downward-hanging) and weak wood and to improve light penetration into the tree
- Stub cuts to reduce crop load and renew spurs
- Heading cuts to encourage branching (leaf production) and reduce crop load

Thinning cuts

Each year, begin by removing any pendant or small-diameter wood at the point of its origin. Typically, these branches overset and produce small cherries. Removing these branches in the dormant season can eliminate a significant amount of small cherries before they develop.

Also reduce branches in the top of the tree and on the perimeter to a single shoot.

These thinning cuts will allow light to reach the inner and lower portions of the tree. Only leaves in full sunlight can photosynthesize at maximum capacity.

Stub cuts

The current season's crop can be reduced by heading with stub cuts. Stub cuts also replace branches and renew old spurs.

The highest quality cherries grow at the base of last year's growth and on young spurs. Therefore, no spur should be older than 5 years old. To keep spurs within this age range, stub back and renew 20 percent of all fruiting branches each year.

Adequate light must reach the area around the cut in order for a new branch to form. For this reason, cut branches located near the tree base to a longer stub than those near the tree top. Stubs can range from 3 inches to 2 feet in length, depending on the position of the branch in the tree.

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Heading cuts

Lateral branching is necessary to produce enough leaves to produce a crop of premium cherries. Because cherries are characterized by strong apical dominance, lateral branches will not form readily without grower intervention, although the degree of natural branching varies among varieties. Heading cuts are the most common technique used to overcome apical dominance and encourage branching.

A heading cut does two things. First, it eliminates the source of auxins (natural plant hormones that inhibit branching) to the lateral shoot buds, encouraging multiple lateral breaks to arise immediately below the cut. These branches increase the number of leaves that produce carbohydrates for developing fruit lower on the branch. Often, new shoot leaves are at least 50 percent larger than spur leaves, thereby contributing significant photosynthetic potential.

The second important function of a heading cut is to reduce the crop. A heading cut in 1-year-old wood reduces the future cropping potential of the branch. By removing one-third to one-half

of last year's new growth from every shoot during the dormant season, a substantial portion of the future crop can be eliminated. In fact, since terminal spurs produce more flowers than basal spurs and are closer together (Figure 1), removing one-third of the new growth will reduce a branch's fruiting potential by about one-half.



Figure 1. The flowering spurs that will form at the base of the previous season's shoot growth will be spaced farther apart, and will have fewer flowers per spur, than those that will form at the tip of that growth.

Step-by-step pruning for crop load management on productive rootstocks

Step 1. Thinning cuts

When: Dormant season, each year

How: Remove pendant wood and weak shoots less than pencil-size in diameter.

Why: Removes wood that tends to overset and produce small fruit.



Step 1. Remove all pendant and small-diameter wood.

Step 2. Stub cuts

When: Dormant season, beginning after the second year of significant fruiting, to be repeated every year

How: Start renewing branches. Renew 20 percent of all fruiting branches each year in order to keep spurs young and producing high-quality fruit. Stub branches back, leaving 3- to 5-inch stubs at the top of the tree and longer stubs at the bottom or where light intensity is less.

Why: Reduces current crop and renews spurs.



Step 2. Make stub cuts to reduce the current season's crop and force renewal of older fruiting branches and spurs.

Step 3. Thinning cuts

When: Dormant season, each year

How: Thin new shoots to a single branch, especially at the top of the tree.

Why: Allows light to penetrate the center and bottom of the tree, maximizing photosynthesis and producing fruit throughout the canopy.



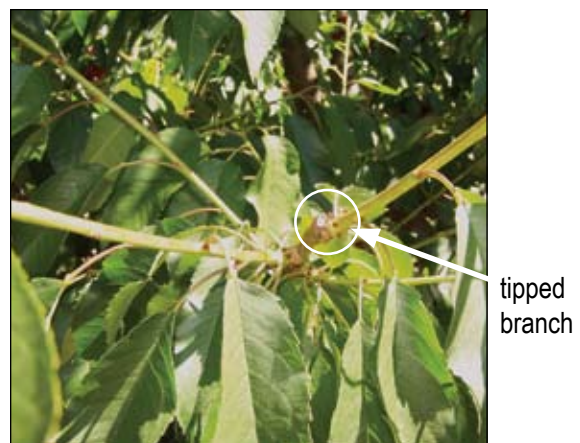
Step 3. Thin branches for light penetration.

Step 4. Heading cuts

When: Beginning the first dormant season, to be repeated each year

How: Tip all new future fruiting branches, removing one-third to one-half of every shoot.

Why: Encourages branching and creates new leaves. Reduces future crop load by eliminating the buds that are closest together and will have the most flowers per spur.



Step 4. Tip branches to reduce the future crop and force production of large new leaves.

A note about nitrogen

Balancing the crop load to maintain the proper LA:F ratio assumes that adequate irrigation and nutrient management are practiced. In addition to soil-applied nitrogen (N), trees may benefit from a foliar spray of low-biuret (containing low levels of impurities) urea (30–45 lb N/acre). Apply foliar N in the fall just prior to leaf senescence. Choose a nitrogen product designed for foliar applications to avoid burning the leaves. This application will increase N storage in the buds and might result in larger spur leaves in the spring (thus more carbohydrate production for fruit growth). Some marginal leaf burn might occur at higher nitrogen spray rates, so use this foliar spray only on a trial basis at this time.

A Spanish-language version of this publication is also available (“Cuatro pasos sencillos para la poda de cerezos sobre Gisela y otros portainjertos productivos,” PNW 592-S). To view online or to order printed copies, visit the OSU Extension Service online Publications and Multimedia catalog (<http://extension.oregonstate.edu/catalog/>). Or, contact us by fax (541-737-0817), e-mail (puborders@oregonstate.edu), or phone (541-737-2513).

References

Whiting, M.D. and G.A. Lang. 2004. ‘Bing’ sweet cherry on the dwarfing rootstock ‘Gisela® 5’: Thinning affects fruit quality and vegetative growth but not net CO₂ exchange. *J. Amer. Soc. Hort. Sci.* 129(3):407–415.