

Industry Perspectives
Cherries



This Industry Perspective was prepared by AgWest Farm Credit's Tree Fruit Industry Team. Direct questions and comments to the Business Management Center by email at bmc@agwestfc.com.

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Cherries

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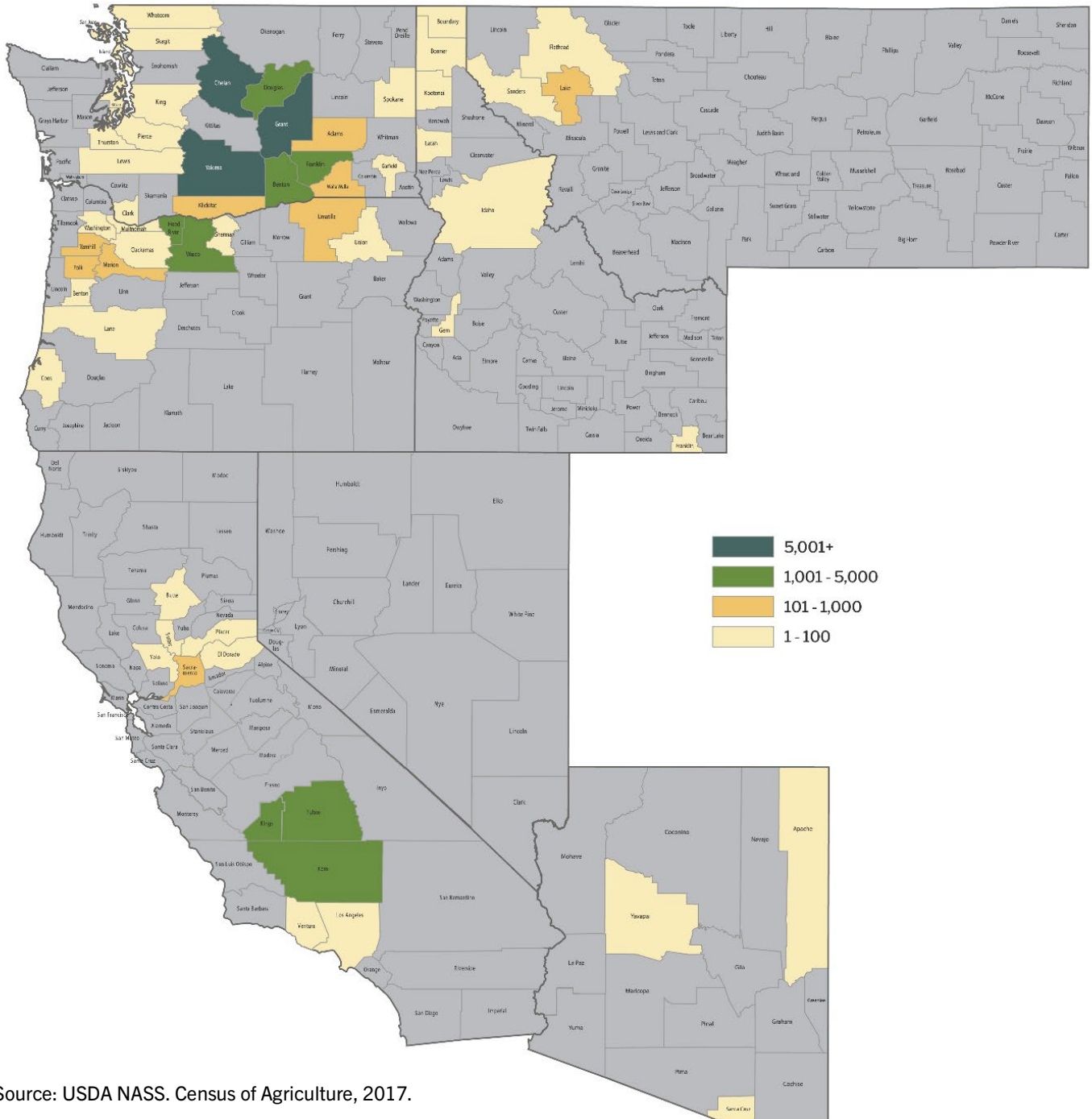
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Introduction

The U.S. is the second largest producer of cherries behind Turkey. Washington leads the nation with around two-thirds of sweet cherry production, followed by California and Oregon. Few places in the world possess the microclimate necessary to grow quality sweet cherries. The irrigated volcanic soils of the Northwest, combined with the region's ideal climate conditions and horticultural techniques, produces a high-quality sweet cherry that continues to provide a competitive advantage to growers.

The Yakima Valley and Wenatchee Valley regions of Washington, and Willamette Valley and The Dalles/Hood River areas of Oregon dominate cherry production in the Pacific Northwest. In California, production occurs primarily within the San Joaquin valley.

Cherry Acres by County, Planted Acres in AgWest Territory



Source: USDA NASS. Census of Agriculture, 2017.

Varieties

The bulk of the Western U.S. red cherry production is comprised of Bing, Sweetheart, Skeena, Chelan, Tieton, Lapin and Lambert varieties. Californian cherries generally ripen two weeks to a month ahead of Northwest. Over the past several years, the Northwest sweet cherry season has become longer and later due to the introduction of varieties, like Sweetheart and Skeena, that favor high elevations. At 8 to 10 tons per acre, and sometimes up to 18 tons with high-density plantings, these varieties outperform others, which typically yield 6 to 8 tons per acre.

Sweet Cherry Varieties, Fresh Market

Variety	Color	Character	Approximate Harvest Time
Chelan	Mahogany, red	Sweet, rich flavor; 16%-18% sugar; firm	Late-April to mid-June
Bing	Mahogany	Sweet, rich flavor; 17%-19% sugar; firm	May to early August
Rainier	Golden, red blush	Sweet delicate flavor; 17%-23% sugar	Late-May to early August
Lapin	Mahogany, red	Late variety; 17%-19% sugar	Early-July to mid-August
Skeena	Mahogany, red	Late variety; 19%-20% sugar	Mid-July to early August
Sweetheart	Dark red	Late variety; 16%-19% sugar	Late-July to mid-August

Additional information about cherry varieties is available via www.nwcherries.com.

Source: AgWest Farm Credit.

Value chain

Growth and harvest

Cherry trees are grafted to rootstocks to improve time to fruit production and protection against diseases and pests, then grown in nurseries for approximately two years before moving to an orchard. It takes about two more years to produce fruit and another three to four years to reach full production capacity.

Cherry growers are increasing both acreage and yields while also decreasing variability in production volumes. Growers are able to plant more trees per acre and utilize newer varieties that provide better quality, consistency and yield. Blossom thinning techniques are improving and enabling growers to better manage and estimate fruit sizes and yield. Growers utilize upright fruiting offshoot (UFO) trellis systems when soil quality is sufficient enough to support higher production rates and this can take tree density from 500 an acre to as high as 2,000. Trees are planted at an angle and limbs are trained up wires to focus growth on fruiting walls (as opposed to non-productive wood), improve space utilization and allow for faster picking.

Weather is an important variable to consider during the growing season as frost during bloom and/or excessive wind, rain, hail and heat during the growing season can damage fruit quality and thus lower income and increase sorting costs. Conditions can also trigger an extended bloom, which may lead to inconsistent fruit ripening and necessitate multiple harvests on the same ground (increasing labor costs).

Harvest is done by hand and occurs from late May to late August. During this time, growers face three interdependent variables: crop size, labor availability and harvest time. A larger-than-average crop harvested within the normal time horizon may not be ideal if there are insufficient workers to handle it. Conversely, during a small crop year, lower-production orchards may have a harder time attracting labor as they are outcompeted by other producers who can offer more work hours. Once picked, cherries are placed first into small buckets and then into large bins that can hold 300 to 400 pounds.

In the winter, cherry trees turn dormant and preparation for the following season begins. Pruning and/or thinning can help to reduce the risk of diseases spreading, improve fruit quality the following season, allow for more sunlight to come through and facilitate easier harvesting.

Packers

After harvest, growers send cherries to packing warehouses where they are washed, sorted by size and grade and then packed for retail (below-grade quality fruit is culled). The Northwest's two main packing hubs are in Yakima and

Wenatchee, Washington. Cherries are highly perishable and not stored for long periods of time. Packing and transportation delays can severely impact quality.

The tree fruit industry has seen vertical integration as large warehouses purchase orchards or enter into long-term agreements with large, independent suppliers. This helps reduce costs and manage fruit supply. The tree fruit industry has seen vertical integration as large warehouses purchase orchards or enter into long-term agreements with large, independent suppliers. This helps reduce costs and manage fruit supply. Marketing tasks have also been consolidated. Several packing warehouses sell their own fruit or more commonly sell through the marketing-sales desks of another packing warehouse.

Marketing-sales desks

Large grocery chains dominate the retail market, and they prefer to source from large suppliers with the capacity to reach many stores with high-quality fruit. This has incentivized consolidation within the industry. Packing warehouses join marketing-sales desks, of which only 10 (there are 30 in total) handle the bulk of Northwest fruit supplies to collectively meet grocery chain demand.

Retailers

Cherries can be one of the most profitable fruits when growing conditions are favorable and this incentivizes retailers and packers to extend the fresh cherry season. Many large marketing-sales desks run promotions and retailer advertising programs to remain attractive to customers and bring predictability to the marketing season.

The success of the Western U.S. cherry industry during the marketing season depends on a number of factors, including:

- Crop size – The marketing season has a relatively fixed window. Weather and packing capacity reduce the ability to tighten it while the perishability of the fruit limits its extension. Consequently, crop sizes can greatly impact prices (larger leading to lower prices and small leading to higher prices). When a glut of cherries overwhelms the industry’s infrastructure, some may not sell and product quality may suffer.
- Overlap amongst producing regions – The Californian cherry harvest season precedes the Northwest; however, some years see an overlap of the two. When this occurs, prices can suffer as more supply hits the market.
- Consistent supply – Fruit competes for shelf space and supply disruptions during the marketing season can lead to retailers switching to another, more reliable item.
- Holiday timing – Growers and packers should have most of the crop harvested, packed and shipped prior to Independence Day to take advantage of promotional opportunities and set the tone for the season.

These factors could impact the entire industry or a single grower depending on the scale and context.

Drivers

Production trends

Advances in growing technologies and practices, along with increased acreage, should have the cherry crop steadily increasing in size over time. Weather is an important consideration during the growing and harvest season. For instance, the 2022 crop season was the smallest since 2008 due to unseasonably cold, wet weather and hailstorms. Early-season varieties (Chelan, Tieton, Bing, Rainier and Early Robin) experienced significantly lower volumes than later-season varieties (Lapins, Skeena, Sweetheart and Regina).

Labor

Labor scarcity is a persistent concern in the tree fruit industry and growers are taking a proactive approach to address the issue. This includes raising wages, working with labor contractors, keeping well-maintained labor camps and modifying practices (utilizing different varieties, production sites and harvest-timing technologies) to improve efficiencies and spread labor requirements over a longer time horizon.

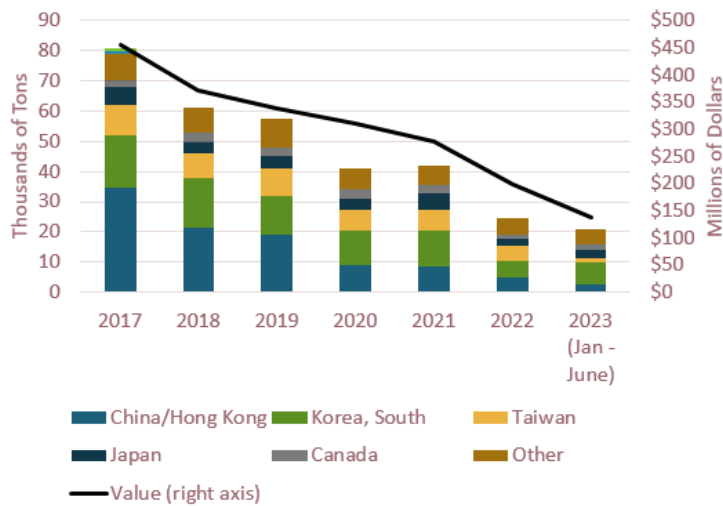
The H-2A Temporary Agricultural Worker program is an important source of labor, but the process is costly and complex. Employers must guarantee employment for 75% of the contracted workdays and provide transportation, housing and a

place to prepare meals. Vertically integrated operations can spread these costs by transitioning workers from field work to packing.

Trade

South Korea, Japan and China are the largest market for fresh cherry exports out of the West Coast and make up about 10% of production, depending on the year. Export quantities have steadily declined from 2017 largely due to lower Chinese demand.

Fresh Cherry Exports from the West Coast, by Country



Source: U.S. Census Bureau.

Technology

Technological advances in the tree-fruit industry are driven by the need to maximize labor, capital and natural resources while increasing yields. The cost of technology is significant, but producers reap substantial economic rewards when proven technologies are implemented as part of an overall business strategy.

Producer

Technological advances play an important role in cherry operations. GPS and variable-rate technologies for fertilizer and water applications continue to gain acceptance among tree-fruit producers. Growers increasingly use remote controlled drip irrigation to address a growing need for oversight in water management. The use of shade cloth is less common in cherries than some other tree fruits; however, some late-season cherry growers may utilize the product. Drone use is helping to improve the availability and quality of data for orchard managers. An array of camera and sensor options provides detailed analysis of soil, moisture, erosion and temperature conditions.

Packer

Capital intensive technological investments have become a feature of the packing side of the tree fruit industry. Packing lines are now able to sort for internal defects, color and size, which provides consumers higher-quality products by minimizing human error. Cameras and highly sophisticated software programs work faster than human hands and throughput capacity is not compromised when sorting through a hail or other weather-damaged crop. Precise sorting technology captures gradable fruit from a lot that would historically have been culled or downgraded a size, thereby securing the highest possible returns for a producer. Robotic palletizing also cuts down on labor requirements and increases worker safety, eliminating the need to manually lift and transport heavy bins, boxes and crates.

Adoption of automated warehouse technologies has reduced labor demand by 30%-40%, relieving what was previously a significant capacity constraint (especially during harvest). While it reduces labor costs, it increases fixed costs and subsequently the required throughput to be profitable. On average, packers need 3,000 to 5,000 tons per year to justify mechanical sizing lines and around 10,000 tons for new optical-technology lines.

Appendix A

Best practices

The following summarizes the best practices common among successful and progressive tree-fruit growers and processors. These primarily relate to issues of production and warehousing.

Orchard production best practices

Have a strategic plan

- Successful businesses have defined goals and are continually in the process of executing specific strategies in their business. These strategies may include growth (e.g., diversification, replication, integration, networking), downsizing/rightsizing or intensifying (i.e., improving efficiency).

Increase gross revenue per acre

- Growers increase gross revenue through a combination of reaping high yields, producing desirable fruit varieties and peaking on a demanded size profile. A desirable varietal mix and high-yielding orchard structures will continue to be critical to competitive top-line revenues.

Contain expenses

- Growers manage fixed and variable expenses, which allows for lower break-even levels.
- Growers with high-density plantings may have a higher cost structure than the average grower, but cost containment remains pertinent as supplies reduce prices in large crop years and the industry becomes increasingly competitive.
- Focusing on orchards of an economic size is key to long-term cost competitiveness.

Diversify varietal mix

- Growers achieve diversification by growing multiple types and varieties of fruit.

Mitigate risk

- Successful growers diversify, when possible, by cultivating crops in differing geographic areas to hedge against widespread weather-related adversity.
- Growers use available risk-management tools, such as crop insurance, to mitigate the risk of adverse and unforeseen events that could drastically affect the business. Crop insurance options include three variations of coverage: production based, revenue based and named peril. Most producers use some combination of these products to tailor a protection strategy that matches the specific safety needs of their business.

Maintain a disciplined approach to orchard renovation

- Orchard renovation not only allows for updated orchard structure (i.e., denser plantings and/or trellis systems), but also allows orchards to avoid varietal strain obsolescence.
- Areas where production is struggling need to be updated. Over 15% of total planted acres on average may be pre-productive at any one time.

Align with fellow growers

- When their operations lack critical mass, successful producers align with other growers to attract picking crews and assure them a consistent supply of work that extends from the start of cherry through the end of apple harvest. Access to a dependable labor force will continue to be an important piece of orchard production going forward.
- Growers also might partner with other growers to leverage volume discounts for equipment, chemicals, fertilizers, fuel and other necessary inputs.

Align with a warehouse

- Successful growers align with successful packing or storage warehouses that provide competitive services at reasonable costs. These warehouses need to have quality facilities and current fruit handling and packing equipment. Growers who align with successful warehouses tend to perform with more consistent profitability.

Align with a sales desk

- Successful growers place fruit with packing and storage warehouses that are aligned with a strong sales desk. This provides ready access to large domestic and international retail markets, which translates into the most competitive returns.

Have a labor management strategy to secure and retain a skilled, adequate labor supply

- Successful fruit growers have established and implemented a labor strategy for their business that will ensure their seasonal labor needs are met.
- Progressive tree fruit growers need to be prepared to furnish housing and year-round employment as a means of retaining key employees.
- To help alleviate labor shortages during peak harvest times, producers have begun planting several varieties at different locations or elevations. This creates varied harvest times and a steadier labor-demand window.
- Larger producers are able to move labor forces from one orchard to another over larger geographic areas to ensure the labor force is retained.
- Many producers are successfully using the H-2A Temporary Agricultural Worker program. Although somewhat expensive, the program provides a feasible solution to labor needs.
- Some producers have successfully used contractors who, for a fee, offer full-service labor. However, this practice has met some resistance, mostly because of timing and scheduling considerations.
- Development of labor-reducing or “picker-friendly” tree-planting styles is proving to be an advantage in terms of the ability to attract and retain an adequate labor supply.

Maintain accrual financial statements and use enterprise accounting

- Successful operations use accrual-based reporting to assess true financial position and performance. These growers also use enterprise accounting to assess profitable and unprofitable business units or orchard blocks.

Maintain a sound financial position

- Orchardists with strong liquidity and lower leverage are able to absorb market down cycles and take advantage of strategic opportunities.
- A business should assess the adequacy of its financial position annually by using tools such as financial ratios, peer financial benchmarks and historical trend analyses.
- Stress case scenarios may also be used to give an accurate picture of the true financial position of the business given possible adverse scenarios.

Warehousing best practices

Have a strategic plan

- Successful businesses have goals and are continually in the process of executing specific strategies in their business. These strategies may include growth (e.g., diversification, replication, integration, networking), downsizing/rightsizing or intensifying (i.e., improving efficiency).

Maximize facility use

- Successful warehouses maximize use of fixed assets.
- Improved use results in reduced per-unit costs, which enables warehouses to maintain competitive grower returns.

Contain expenses

- Warehouses, as processing entities, must contain fixed and variable costs to maintain competitive packing charges and maximize income levels.
- Cost containment allows a warehouse to reduce the level of throughput needed to break even in short crop years when fruit supplies are more scarce than usual.

Align with other packing warehouses

- Allied packing warehouses trade packing and storage capacity to use assets to their fullest potential. This situation is most often seen with warehouses using a common sales desk.

- Aligned warehouses can dedicate a specific line to a particular variety, with fewer changeovers.
- Sharing and balancing storage needs, improving the variety and size profile of manifest for sales desks and working together to realize increasingly efficient logistics and distribution are inherent advantages of partnership.

Partner with a proven and successful sales desk

- Successful packing warehouses align with sales desks that have steady access to a wide range of retail customers that use a broad portion of the total manifest, ultimately, to maximize returns to the grower.
- Some integrated operations also own and operate a sales desk.
- Successful packing warehouses must closely monitor sales-desk performance to ensure that competitive returns are realized on packed fruit.

Embrace new technology

- New technology, both in the field and in the warehouse, could reduce labor requirements substantially over the next five to 10 years. Specifically, such technology could include the use of platforms and mechanical harvest methods in the orchards or the increased use of robotics and digital-imaging sorters within the warehouses.

Align with growers

- Packing warehouses align with growers to assure their targeted product throughput.
- Integrated operations grow a significant portion of the fruit they pack.

Provide new value-added processes

- When working with retailers, value-added processes may prove to be a competitive differentiator. Such processes include inventory management, labeling, traceability programs, promotions and other value-enhancing activities.

Maintain a sound financial position

- Warehouses with strong liquidity and lower leverage are able to weather adversity and take advantage of strategic opportunities.
- A business should assess the adequacy of its financial position annually by using tools such as financial ratios, peer financial benchmarks and historical trend analyses.
- Stress case scenarios may also be used to give an accurate picture of the true financial position of the business.

Appendix B

Glossary

Bin: A container that holds 300 pounds of cherries.

Bloom: A period that starts with the pink set and ends with petal fall about 10 days later. 'Full bloom' is defined as the day that 60% of 'king blossoms' are open on the north (shady) side of the tree.

Blossom thinning: Removing some of the blossoms that are turning to fruit.

Box: In the Northwest, a container that holds 20 pounds of cherries. In California, a box of cherries is 18 pounds.

Bud: Found in the axils (the upper angle between a leaf stalk or branch and the stem or trunk from which it is growing), a bud is basically a dormant and compressed shoot, which given the right conditions will resume growth.

Cambium: The thin layer of tissue, often green or greenish yellow, between the bark and the wood on a tree. It is important to line up the cambium in grafting between rootstock and scion.

Central leader: A tree where the main branch goes straight up the center.

Clone: A genetically identical group of plants derived and maintained from one individual by vegetative propagation.

Cold hardiness (hardy): The ability of plants to withstand cold injury (autumn-winter).

Cross pollination: Pollen moving from one flower to another, on the same plant or among flowers on different plants. Pollen moved between different plants often results in fruit that is different from either parent (i.e., a hybrid of the two).

Culls. Fruit that is discarded at the warehouse and will not go to market.

Cultivar. A plant variety that has been produced in cultivation by selective breeding.

Dormant: Describes the inactive or sleeping state in which a plant stops growing but is still alive.

Drip irrigation: Watering through soaker hoses or emitters placing water at plant bases on the soil surface; least wasteful method of watering.

Drip line: The rough circle that may be drawn on the ground around a tree where rain would drip off the outermost leaves. The most active roots are often located along this line.

Fresh: Fruits (or vegetables) that are harvested and sold without the intention of further processing. Generally, fresh fruits will be consumed raw or cooked by the consumer.

Frost damage: Cold-temperature injury during a stage of the growing season. Parts affected are flower buds, flowers and young fruit (spring) or near-mature fruit or other tissues (fall).

Fruiting wood: The smaller wood or spurs on which the fruit is actually grown.

GLOBALGAP: An internationally recognized set of farm standards dedicated to Good Agricultural Practices (GAP). Through certification, producers demonstrate their adherence to GLOBALGAP standards. For consumers and retailers, the GLOBALGAP certificate is reassurance that food reaches accepted levels of safety and quality, and has been produced sustainably, respecting the health, safety and welfare of workers and the environment, and in consideration of animal welfare issues. Without such reassurance, farmers may be denied access to markets.

Grafting: A way to propagate a plant by inserting a section of one plant (the scion) into another plant (the stock).

Hardiness: Ability of a plant to withstand temperature extremes; usually refers to cold hardiness.

High density: An area where more than 415 trees are planted per acre.

King blossom: The larger dominant blossom that is usually found in the center of the blossom cluster, surrounded by the yet unopened 'side blossoms.' The largest fruit will come from the king blossom.

Mildew: A grayish-white fungus disease found on the leaves, shoots and fruit.

Organic certification: Verifies that a farm or handling facility complies with USDA organic regulations. This certification allows the holder to sell, label and represent products as organic. Farms all over the world may be certified to the USDA organic standards. Most farms and businesses that grow, handle or process organic products must be certified.

Packouts: The number of boxes of fruit that can be packed out of a bin.

Packer: Company that owns the warehouse where cherries are packed, stored and shipped.

Pickers: Workers who pick tree fruit by hand, and carefully handle the fruit to ensure good quality. The picker wears a bucket that has a canvas bottom, held shut with a drawstring. When the bucket is full, the worker empties it into a wooden bin by releasing the string.

Pollination: The transfer of pollen from the male part of flowers (the anthers) to the female part (the stigma). Poor pollination results in a small fruit crop. In most tree fruit, the transfer is accomplished by insects. Because there are not enough wild bees to pollinate commercial orchards, growers place beehives throughout the orchard for 10 to 14 days during the bloom to ensure good pollination. Full bloom is when good pollination is essential.

Processing: Fruit that is not sent to the fresh market and is typically canned, sliced or juiced.

Pruning: The removal of living canes, shoots, leaves and other vegetative parts of the branch.

Rootstalk: Sometimes called “stock,” this is the root system (plant) propagated from seed (seedling) or vegetatively as common in clonal rootstocks on which various cultivars are budded or grafted. Many rootstocks are used and possess traits that relate to anchorage, size control, tolerance of light and heavy soils, “wet feet,” specific nematodes and other plants and diseases.

Marketing-sales desk: Sells and markets fruit on behalf of packers.

Scion: A detached stem, usually dormant, used in asexual propagation by grafting techniques.

Set: The amount of blossoms or fruit held on the tree.

Shoot: Wood that is usually not over 1 or 2 years old and is longer than the short, stubby spur growth.

Sleeping eye: Grown less than one year at the nursery. The rootstock is budded with the preferred variety in the fall. Before winter, the rootstock with its dormant bud is harvested, kept under optimal storage conditions, and then provided the next spring to the grower for establishment in the orchard. The grower is then responsible for training the tree resulting from growth of the bud, a step that is usually conducted at the nursery. This results in a lower outlay by the grower at this point in orchard establishment.

Sucker: A cane that emerges from below the bud union, and therefore comes from the rootstock rather than from the variety grafted onto it. On other plants, a sucker is any unwanted, fast-growing, upright growth from roots, trunk, crown or main branches.

Sunburn: The damage caused by the hot summer sun on the branches, “cooking,” and destroying the bark and tissues.

Thinning: Removal of flower clusters, immature clusters or part of immature clusters. (See also ‘blossom thinning.’)

Training: Certain practices supplementary to pruning and necessary for shaping the vine.

Variety: Variety and ‘named variety’ are commonly used to mean the same as cultivar. Technically, a naturally occurring variant of a species.

Vigor: Refers to amount and rate of growth; relative among cultivars, climates and horticultural practices.