

A Technical Information Bulletin of the Northwest Horticultural Council

Tree Fruit Traceability System Prepared July 31, 2018

Apples and Pears

A. Orchard

- 1) When the picker finishes filling a field bin, a bin tag is attached to it. The bin tag has the lot number (which designates the orchard), the variety and the harvest date, and sometimes the orchard block number and picker name. The bin tag is the first step in traceability to the orchard for quality and food safety purposes, and assures the correct grower is paid for the fruit. Below are two examples of bin tags from different packing companies:



Wood Bin



Plastic Bin

Lot number – indicates which farm produced the fruit

Farm name

Pool number – for marketing and payment purposes, this number groups together similar fruit from different farms

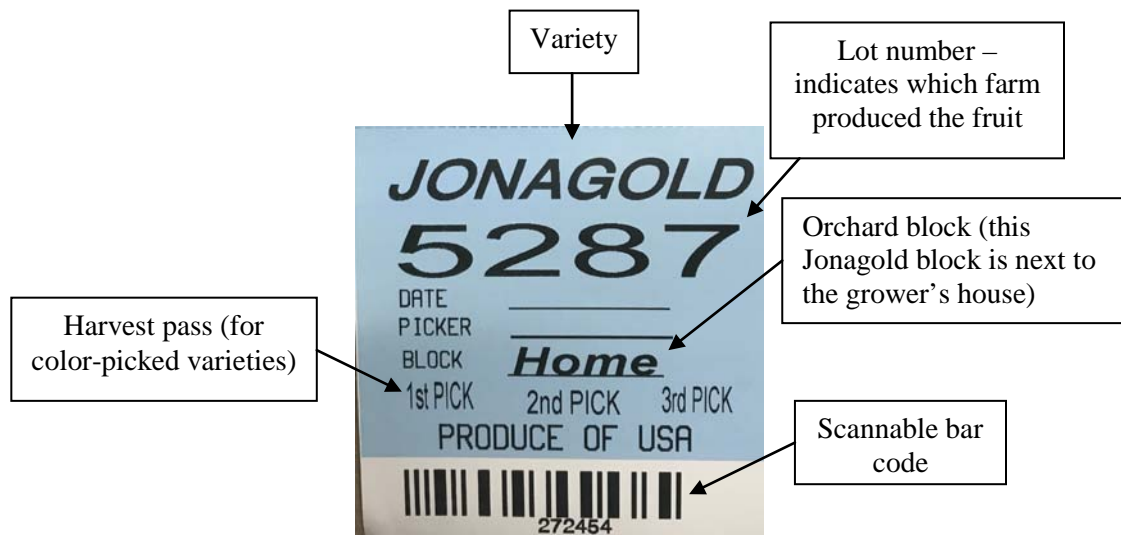


Variety

Orchard block number

Harvest date

Packing company name



- 2) The bin of fruit is taken out of the orchard and moved to a loading area, where it is loaded onto a truck for transport to the warehouse receiving area. When the load of bins is secured, the truck driver may give a copy of the load ticket to an orchard employee, so the grower or manager has a record of the number of bins transported in each load, or the ticket may not be given to the orchard staff until after the bins have been weighed and put in storage.

B. Warehouse Receiving Area and Cold Storage

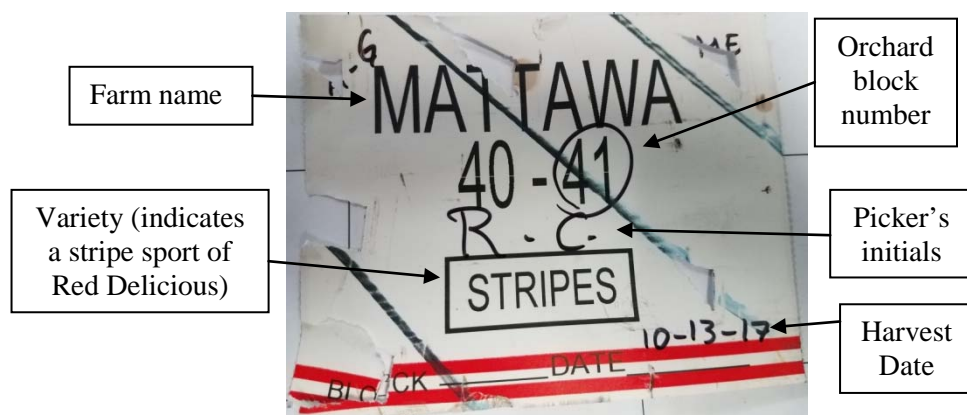
- 1) When the truck arrives at the warehouse receiving area, the driver gives the receiving supervisor a copy of the load ticket, and then he drives onto a scale so the weight of the fruit can be calculated. The receiving manager records the fruit weight, and directs the truck driver to take the load to a designated cold storage room so the bins of fruit can be unloaded and placed in storage.
- 2) Inventory sheets showing the locations of the bins stored in each room are continuously maintained throughout the storage period.

C. Commit-to-Pack versus Pre-Size Systems

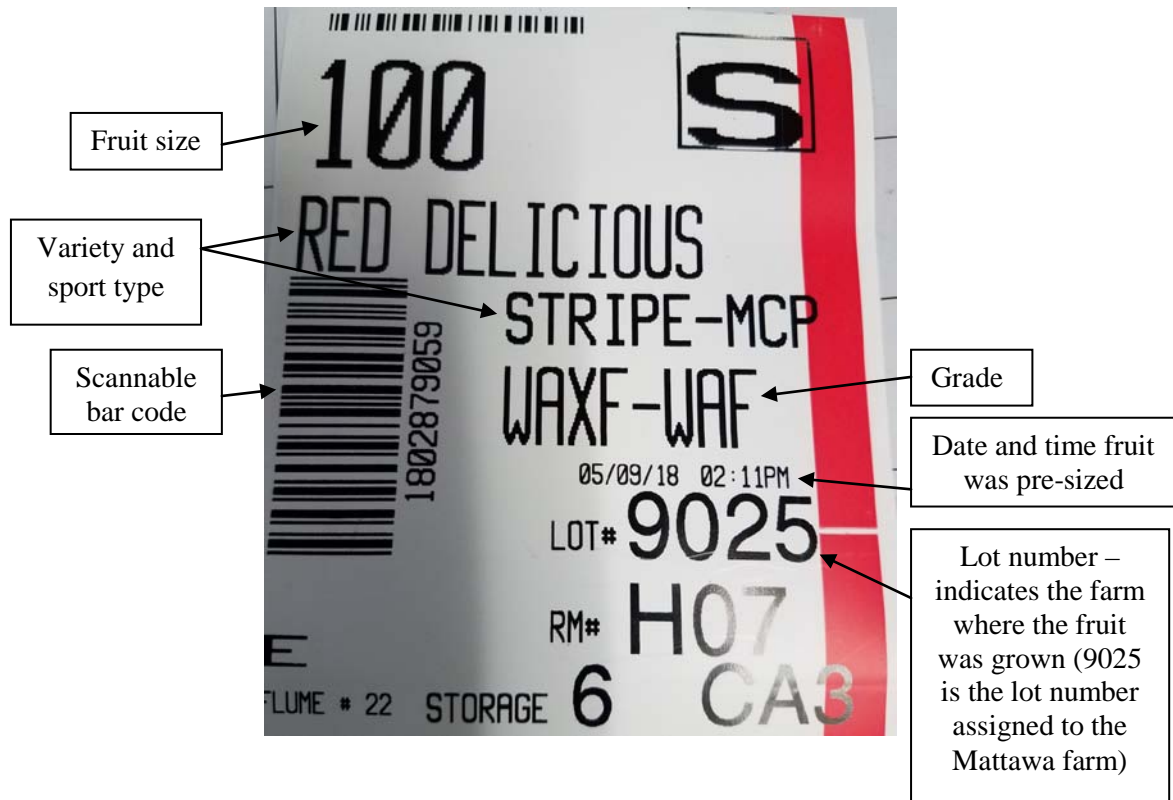
- 1) In commit-to-pack systems, fruit is removed from the storage where it was placed after harvest (this is called “field-run” fruit) and taken directly to the packing line with no intermediate steps in between. All sizes and grades of fruit in the bins are packed at the same time, so the sales department must find buyers for all the sizes and grades placed in packed fruit inventory.

- 2) In a pre-size system, field-run fruit is taken from cold storage to a specialized pre-size line. Pre-sizing is only done for apples but not pears, because pears are too easily damaged by an extra packing step.
- i. The bins go through a bin dumper system, where each bin is submerged in a tank and the apples are gently floated out into water-filled flumes.
 - ii. The apples move onto a weighing sizer and computerized optical color sorter. They may also pass through an infrared sorter that takes out internal defects, and possibly move over a sorting belt with human sorters.
 - iii. Different sizes and grades of fruit are separated onto different belts (or water-filled flumes), and the fruit goes into new bins, separated by size and grade.
 - iv. The bins of pre-sized fruit are labeled with new bin tags that contain all the information required for traceability. Those bins are then placed back in cold storage.
 - v. When the sales department has a need for a particular size and grade of fruit, the packing line staff can pull the specific fruit needed out of storage and pack it, instead of packing all sizes and grades at the same time.
 - vi. Even though fruit receives new bin tags after pre-sizing, it is still fully traceable to the orchard where it was harvested. Below are examples of bin tags placed on field-run fruit at harvest, and new bin tags placed on bins of the same fruit after pre-sizing.

Field run fruit bin tag:



Pre-sized fruit bin tag:

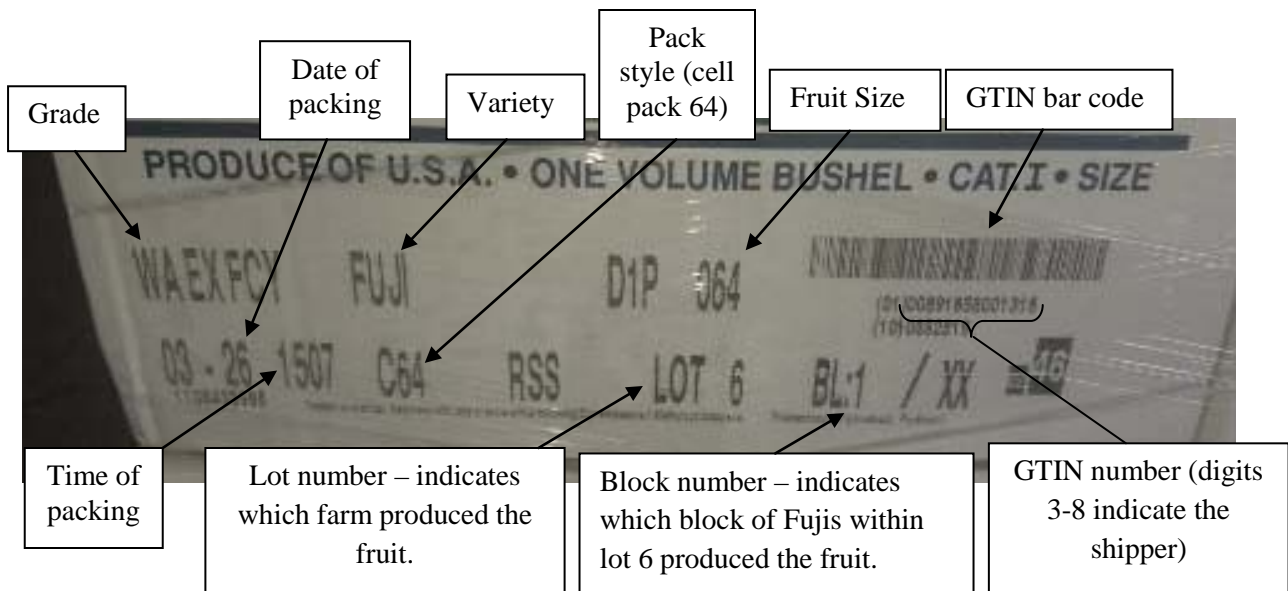
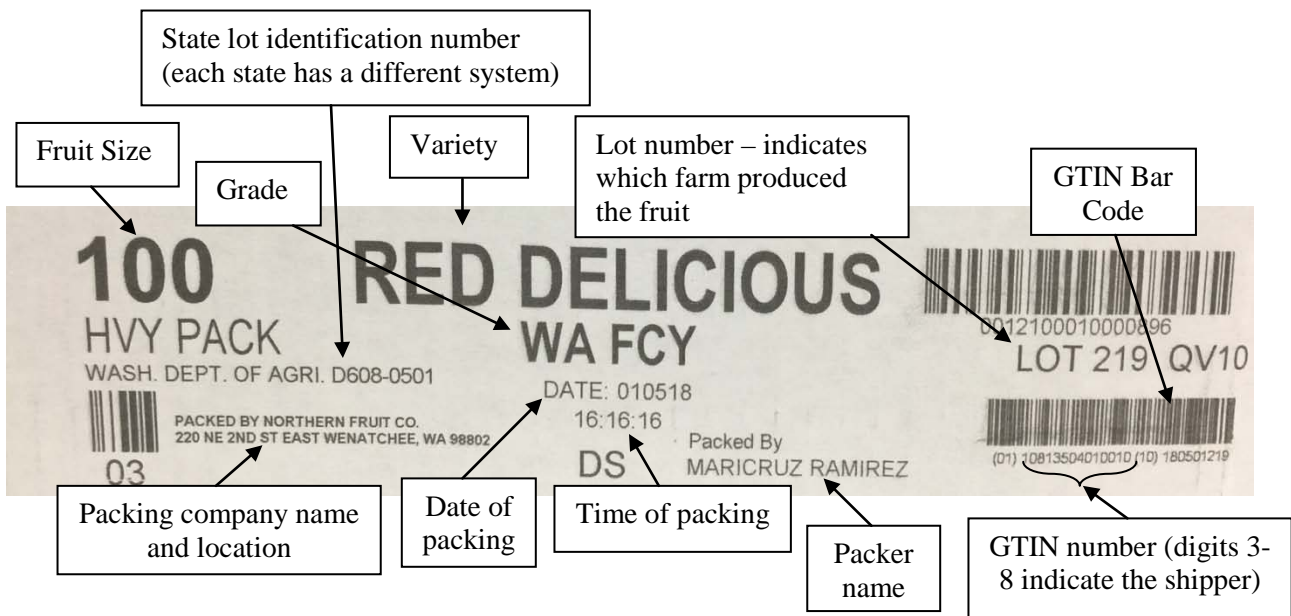


D. Packing

- 1) At the time of packing, the bins of fruit are removed from cold storage and transported to the packing line.
- 2) Each bin goes through the bin dumper system, where the bin is submerged in a tank, and the fruit is gently floated out of the bin, into a flume, and onto a packing line.
- 3) Only one lot at a time is packed. If a lot change is necessary during a packing shift, plenty of space is left between the end of the previous lot and the beginning of the new lot, so fruit from different lots is not comingled.
- 4) After the lid is placed on each carton, the end panel is stamped with information needed for loading, shipping and traceability. The end panel always contains information on the fruit variety, lot, grade, size, pack style, and pack date. It may also contain information on the time of day the fruit

was packed, the packer name (if the fruit was packed by hand), the cold storage room where the fruit was stored before packing and the orchard block that produced the fruit. The name and location of the packing company might be on the end panel, or it might be printed on some other part of the box.

Below are examples of apple carton end panels (pear carton end panels contain the same information). If a government entity (U.S. or foreign) or business customer has a concern with the fruit, they only need to send a picture of the carton end label to the U.S. government or the supplier, and all relevant information about the fruit related to growing, harvesting and packing can be traced. Activities that occur after packing, such as overseas transport, must be traced using shipping records and other business documents.



Cherries

A. Orchard

- 1) Cherries are often not picked directly into bins by the pickers, because cherry quality can deteriorate if the fruit stays in the orchard too long. Normally the bins stay on bin trailers that each hold four bins, and the trailers are driven slowly through the orchard rows. Cherries are gently dumped into the bins from picking buckets or lug boxes.
- 2) After the bins on a trailer are filled, bin tags are attached to them and they are placed in the shade or loaded directly into a refrigerated truck. Like apple and pear bin tags, cherry bin tags contain the lot number (which designates the orchard), the variety and the harvest date. They sometimes have the orchard block number, but rarely the picker name (unless only one picker picks into each bin).
- 3) To preserve quality, cherries are almost always transported to the warehouse receiving area in refrigerated trucks. After the truck is loaded, the driver gives a copy of the load ticket to an orchard employee, so the grower or manager has a record of the number of bins transported.

E. Warehouse Receiving Area and Cold Storage

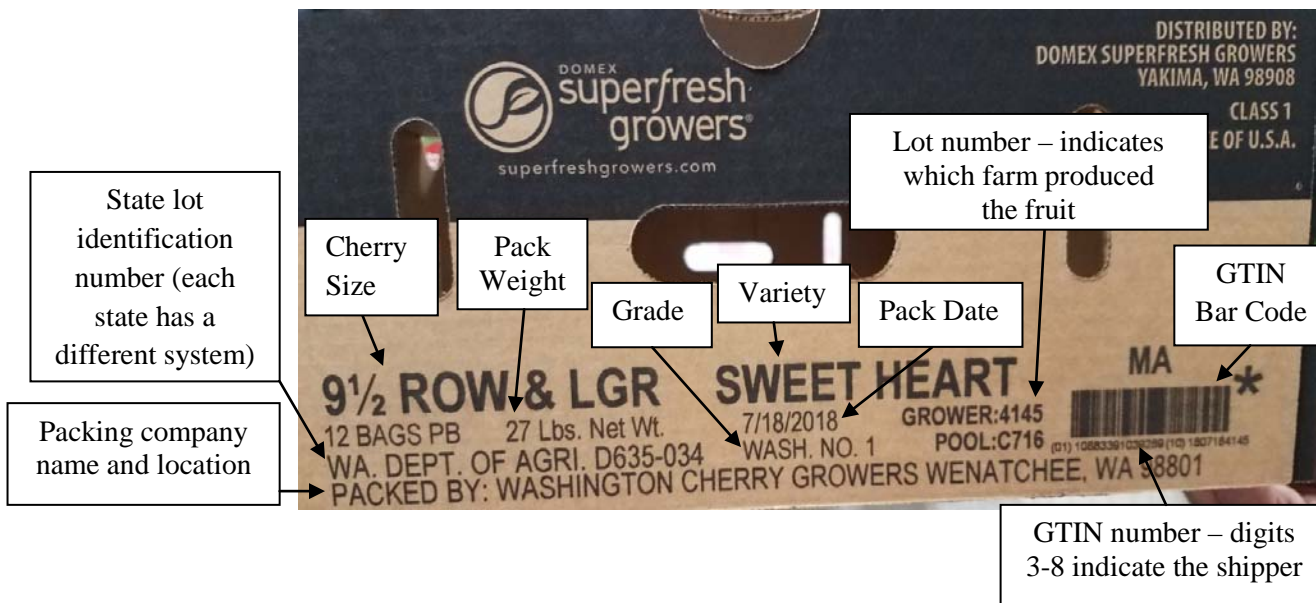
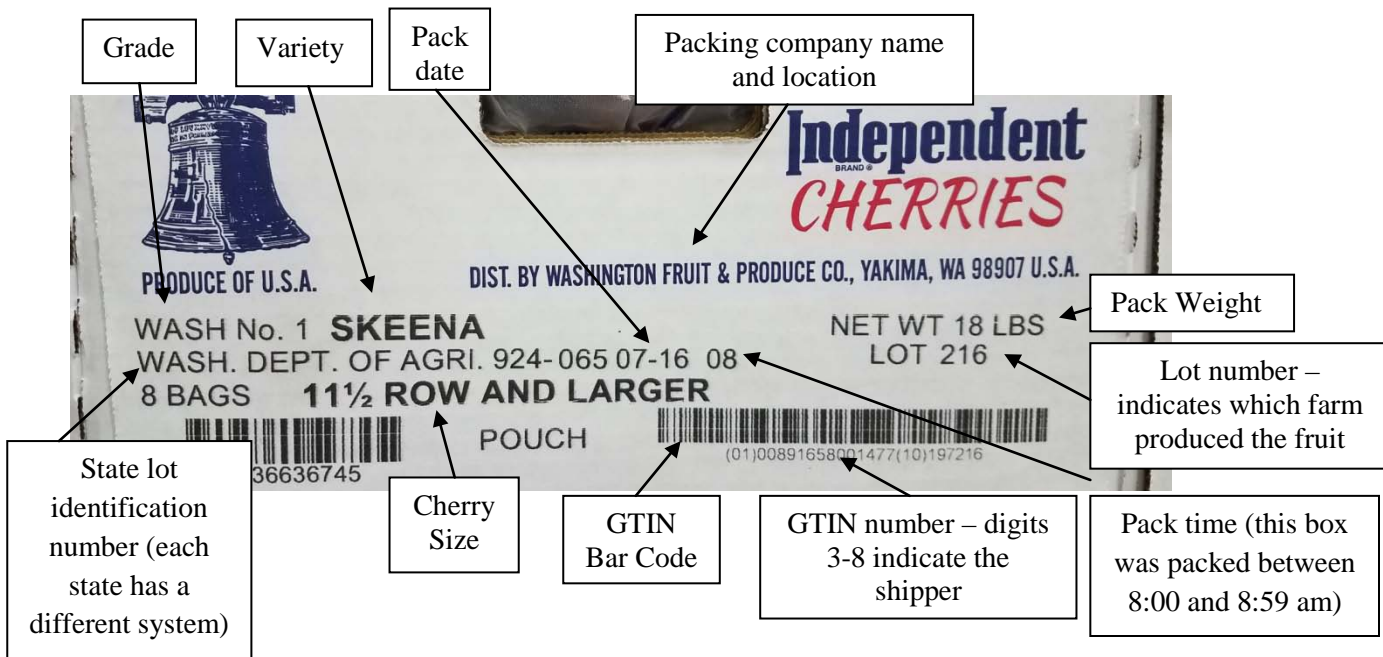
- 1) As with apples and pears, upon arrival at the receiving area the truck driver gives the receiving supervisor a copy of the load ticket, and then drives onto a scale so the weight of the fruit can be calculated. The receiving manager records the fruit weight, and directs the truck driver to take the load to a cold room or a hydrocooler so the temperature of the fruit can be brought down quickly.
- 2) The fruit may be hydrocooled and packed immediately, or it may be held in cold storage for a few days. Every effort is made to pack and ship cherries as soon after harvest as possible, so the customer receives them in good condition.

F. Packing

- 1) At the time of packing, individual bins of cherries go into a bin dumper system, where the cherries are removed from the bin and routed through cluster cutters. They are then moved to sorting, sizing and packing steps using water-filled flumes.
- 2) As with apples and pears, only one lot at a time is packed. If a lot change is necessary during a packing shift, plenty of space is left between the end of the previous lot and the beginning of the new lot, so fruit from different lots is not comingled.

- 3) After the lid is placed on each carton, the end panel is stamped with information needed for loading, shipping and traceability. The end panel always contains information on the fruit variety, lot, grade, size, pack weight, and pack date. It may also contain information on the time of day the fruit was packed, the orchard block that produced the fruit, and the fumigation number (if the fruit was fumigated). The name and location of the packing company might be on the end panel, or it might be printed on some other part of the box.

Below are examples of cherry carton end panels. If a government entity (U.S. or foreign) or business customer has a concern with the fruit, he only needs to send a picture of the carton end label to the U.S. government or the supplier, and all relevant information about the fruit related to growing, harvesting and packing can be traced. Activities that occur after packing, such as



Global Trade Item Number (GTIN)

In 2008 the U.S. and international produce industry began implementing a new traceability system developed by GS1, a global standards organization. The system is based on the Global Trade Item Number (GTIN), which is similar to the UPC used to identify individual fruit and other items.

A GTIN is 14 digits long, and the most important section is digits 3-8. These numbers form the GS1-issued six-digit company prefix, which is unique to each shipper. After the company prefix is assigned, it becomes part of all GTINs stamped on cases of fruit packed by that shipper. Besides the company prefix, each GTIN also has a 5-digit reference number that represents various attributes of the fruit and the packaging. In order for a carton to be PTI-compliant, the GTIN must be “human readable”, and it must be stamped on the same side of the carton as the lot number so receivers can quickly read the information. Along with the human readable number, each carton must also have the lot number and GTIN encoded in a GS1-128 barcode that can be accurately scanned.

The use of GTIN is voluntary and is not universally utilized in the tree fruit or international produce industry. Cartons without a GTIN are fully traceable to the packinghouse and the farm where the fruit was grown. They also indicate pack date, fruit variety, size, grade, and additional information required by U.S. or specific export country law.