



## Maturity Standards

Harvesting tree ripe Asian pears depends on the following factors, both ground and over color, flesh texture and of course taste! One of our goals of this trial is to develop maturity standards for the best cultivars we identify for NJ and develop simple protocols for growers to determine when to harvest their Asian pears for optimum flavor and marketability.

Note that small fruited Asian pears will not develop the sugars and flavors. Asian pears must be thinned to a single fruit per spur and maybe one every other spur. If crop load is excessive fruit quality will suffer. See the citations below for how to chemically thin Asian pears to remove 50% of the fruit. The rest of thinning must be done by hand clipping.

What we have learned is that you must begin sam-

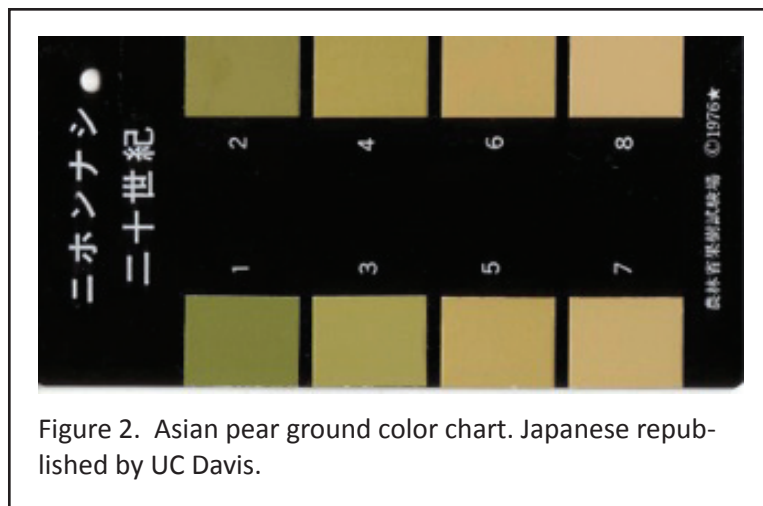


Figure 2. Asian pear ground color chart. Japanese republished by UC Davis.

pling each variety two weeks before anticipated harvest. While each variety will have its own parameters, specifically to color both the back ground color and the over color. It does help if you know what a specific variety and is meant to look like and taste like. The true secret is starting early and then sampling the fruit every 4-5 days.

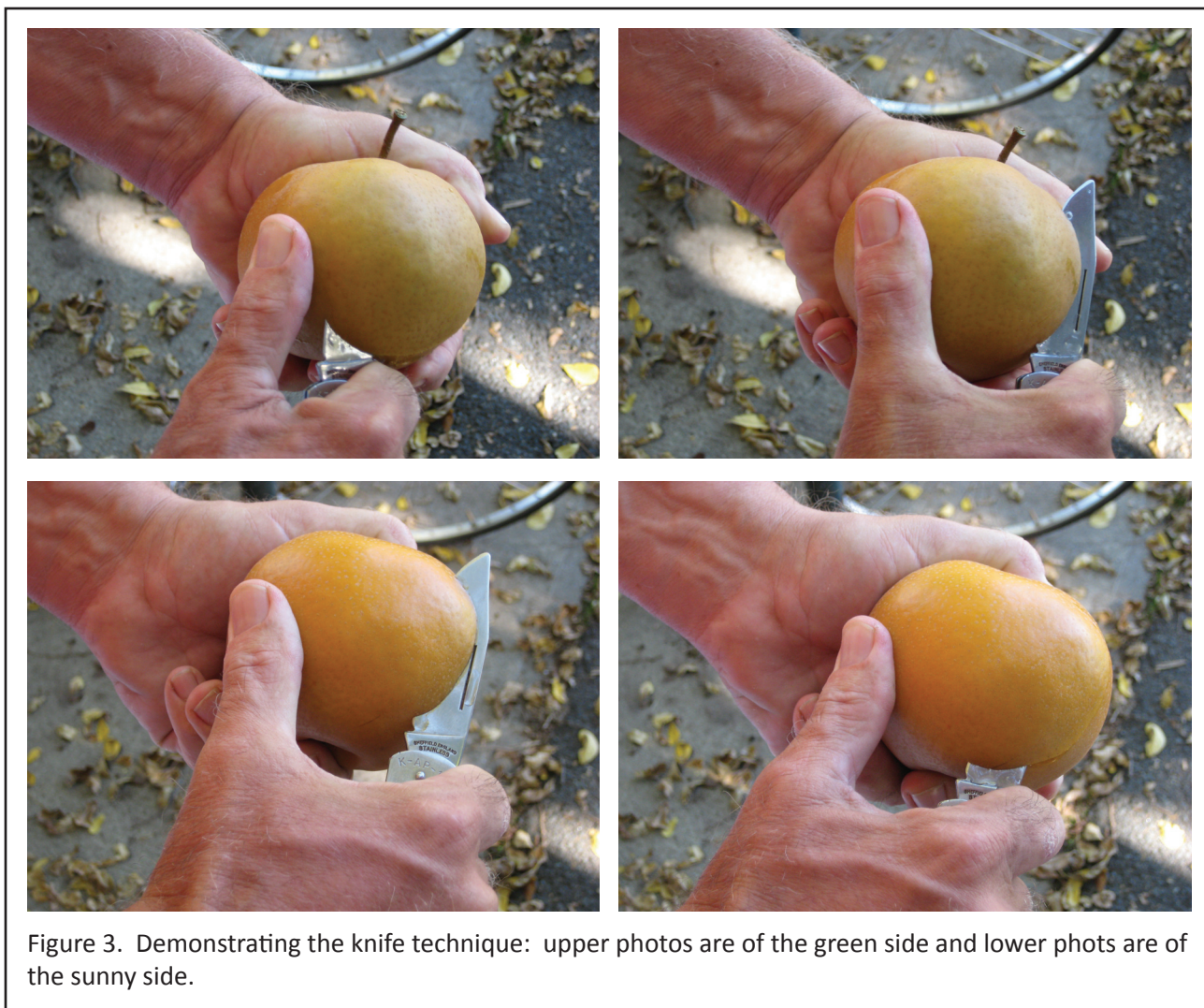


Figure 3. Demonstrating the knife technique: upper photos are of the green side and lower photos are of the sunny side.

You will start to see the back ground color change and the sugars come up as the fruit ripens and gets sweeter. You have to sample fruit for each cultivar from multiple trees to make sure you have a random sample.

In 2012 we started evaluating maturity using the UC Davis Color Chart (**Figure 2**) as a starting point. We attempted to match the ripening pear's background color to the chart. This is an older chart and not all the orange colors were on the chart.

What I found in 2013 was that by starting well ahead of ripening, if you walked the blocks every few days, you could start to see the background color change. As it changed from green to brown or green to yellow (Ya Li) it was easy to see the change.

Individual fruits also ripen on the sunny side of the tree first (south and southwest) and individual fruits will not ripen uniformly, the sunny side can be more mature than the back shaded side. The entire fruit has to begin to change color to be ripe enough to harvest.

For texture and eating quality, you also had to sample the fruit and eat a slice to check for sugar/texture. Immature fruit will not taste good and will be hard. You have to sample the green side as well to make sure that it is ready. Fruit that has not sufficiently ripened will not have the varietal flavors associated with that pear. It will also be hard and crunchy vs sweet and melting.

We learned one trick/tool for evaluating Asian Pear maturity from an old friend and outstanding Asian Pear Grower, Mr. Ging Lee, Pittstown Fruit Farm, Pittstown, NJ.

Use a sharp knife to slice the flesh of the pear. Bite into a ripe Asian pear and then slice that same pear with a knife (same sharpness) to get the "feel" of what a ripe pear should slice like. When tasting Asian pears, only taste the flesh and not the skin to make sure your evaluating the maturity of the flesh for taste and texture. You will begin to relate maturity and good taste with the flesh texture as measured by the slicing knife. When the Asian pear fruit is totally green (immature), the knife will barely slice the fruit, you have to pull it through. As you try it on a riper fruit, the knife will slice more easily. When fully ripe, it glides right through the fruit. Continue to use the same knife each time you assess field fruit maturity throughout the season. I used this approach extensively in 2013 with great success. The more you use it, the more accurate you will be. You can get to the point where you just slice and you know where you are. See Figure 3 – demonstrating the knife technique.

One of our biggest take away messages from doing

detailed maturity sampling was that almost all Asian pear varieties must be harvest multiple times to have mature fruit fit to eat. Most required 3-4 harvests and some 5 harvests. It is also important to note that some cultivars drop prematurely and will require the use of a stop drop (like Retain®).

## *In Summary*

For harvesting Asian pears at optimum maturity you do the following. Begin tracking background color 2 weeks before anticipated harvest. As background color changes color, slice with knife for texture rating and taste the fruit Both green shaded side of fruit and sunny side must be sampled. Utilize as many harvests as necessary (3-5) to only pick mature fruit.

## *Stop Drop*

Note that some Asian pears can drop prematurely. Retain can be used on pears and I know a number of growers.

## *Citations*

Asian Pear Cultivar Trial in New Jersey and Massachusetts, 2012. Winfred P. Cowgill, Jr., Suzanne Sollner-Figler, Rebecca Magron, Jon M. Clements, Wesley R. Autio <http://www.horticulturalnews.org/92-1/a4.pdf>.

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How to Grow Asian Pears, University of Maryland, Mike Newell <http://www.agnr.umd.edu/agresearch/recs/wrec/files/growingasianpears-newell.pdf>

Kader, Adel. Color Chart. University of California, Davis, 2012 <http://postharvest.ucdavis.edu>

Cost - Effective Asian Pear Thinning for Productivity and Fruit Quality <http://www.sare.org/Learning-Center/Fact-Sheets/Cost-Effective-Asian-Pear-Thinning-for-Productivity-and-Fruit-Quality>

Cytokinin for Chemical Fruit Thinning of Asian Pears, 2009. Winfred P. Cowgill, Jr. [www.hrt.msu.edu/glfw/GLFW\\_2009\\_Abstracts/2009\\_25.pdf](http://www.hrt.msu.edu/glfw/GLFW_2009_Abstracts/2009_25.pdf)



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Bracing research treatments at Adams County Nursery in Milton Delaware, June 14, 2013 with various plant growth regulators.