

ripeSense® Educational Aid

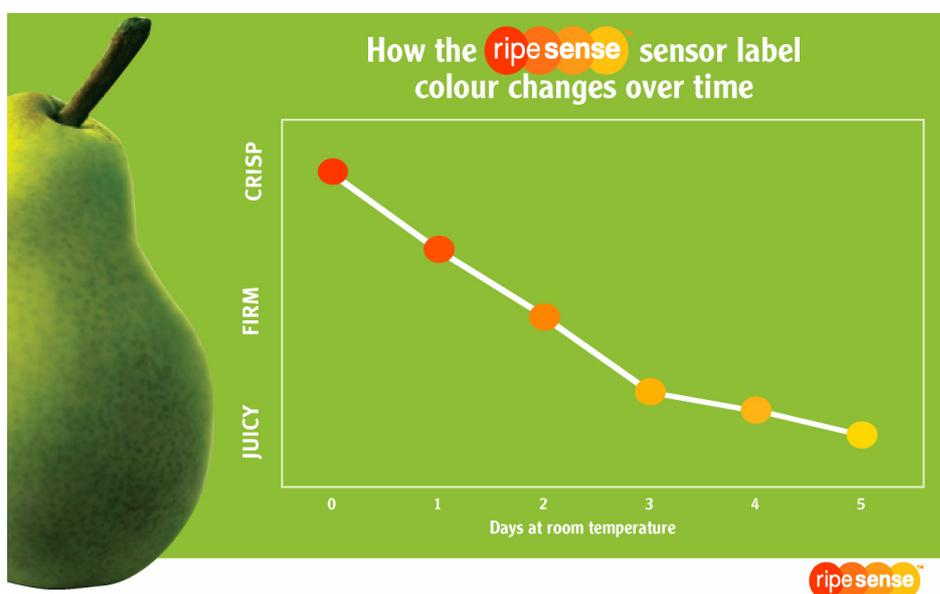
This document has been designed to provide some background information on fruit ripening in relation to how the ripeSense® sensor works.

ripeSense®...turning pears into bananas!

The ripeSense® sensor label has been developed to eliminate consumer confusion about fruit ripeness.

The sensor changes colour from red, through orange, to yellow to indicate ripeness accordingly. By simply glancing at the colour of the ripeSense® sensor, consumers can easily tell how ripe fruit is.

The chart below illustrates the sensor colour change over the ripening period for pears:



How does it work?

The ripeSense® sensor is designed to work with climacteric fruit, which means the fruit continues ripening after it is harvested.

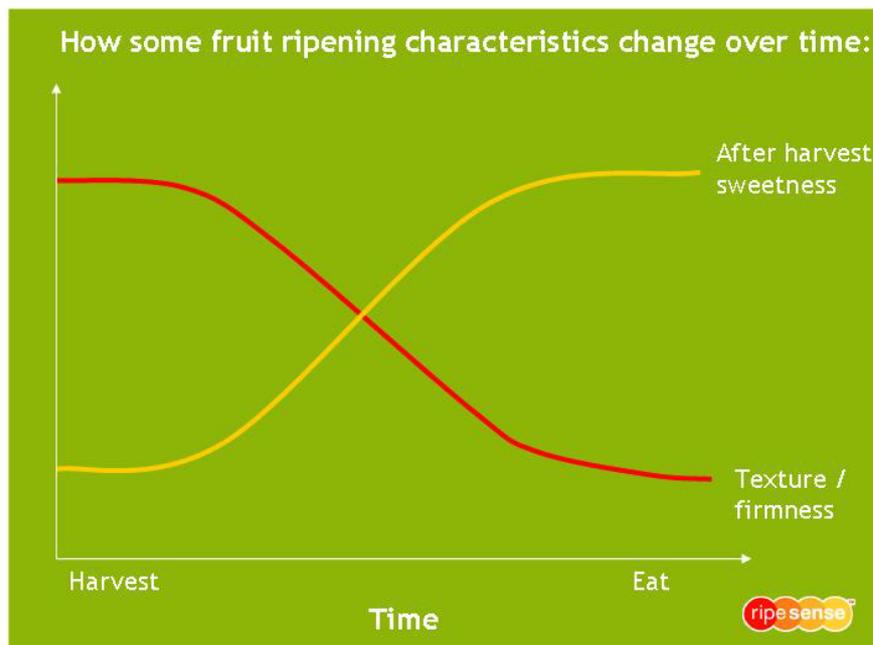
The sensor changes colour by responding to the aromatic volatile compounds emitted by fruit as it ripens.

Ripening is a combination of simultaneous changes in attributes of fruit as they approach optimal eating quality. To gain a better understanding of this and how the ripeSense® sensor works, consider the changes in attributes that combine to make pears 'good to eat':

What makes a pear good to eat?

1. Texture / firmness
2. Flavour / Taste (sweet/sour)/ aroma

With climacteric fruit, these quality attributes change after harvest, as shown in the graph below:



Ripening is the term used to describe the following changes some fruit exhibit whilst developing to become 'good to eat':

- Increase in sweetness
 - o Breakdown of organic acids
 - o Conversion of starch to sugars
- Decrease in firmness
 - o Loss of cell turgor
 - o Solubilisation of starch
 - o Conversion of pectins in the middle lamella
 - o Break down of cell wall components
- Increase in flavour
 - o Production of aromatic volatile compounds
- Changes in colour
 - o Production of pigments
 - o Break down of pigments

In some fruit, changes in colour can be used by consumers to decide when the fruit is "ripe" and will be 'good to eat'. E.g. bananas, avocado, tomatoes.

However some fruit doesn't exhibit obvious visual indication of ripening, such as kiwifruit and most varieties of pears. It is for these fruit that the ripeSense® sensor has been designed.

The ripeSense® sensor label senses the increase in aromatic volatile compounds and changes colour as the fruit ripens. This sensor colour change lets the consumer know when the fruit is "good to eat" ...**which is why the ripeSense® sensor makes ripe pears just as easy to pick as ripe bananas!**