## What happens when a mango ripens

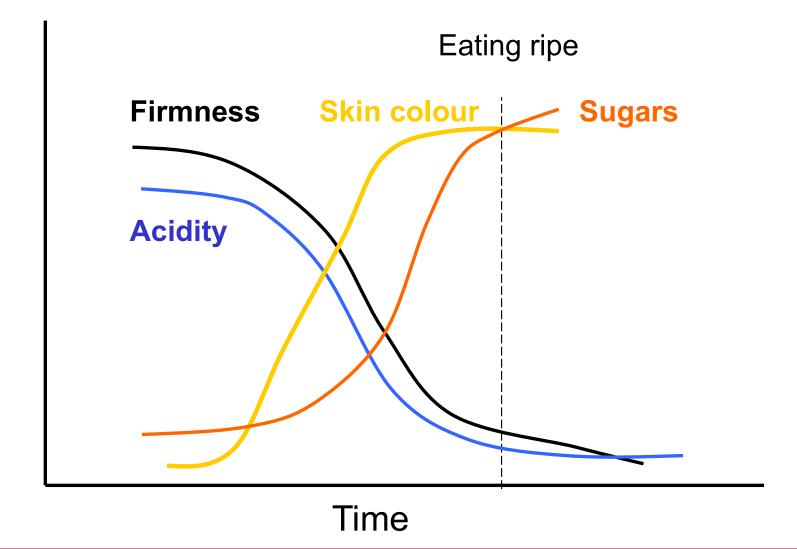


Training for supply chain members

Jodie Campbell, Scott Ledger, Terry Campbell, Leigh Barker

## What changes occur after harvest?

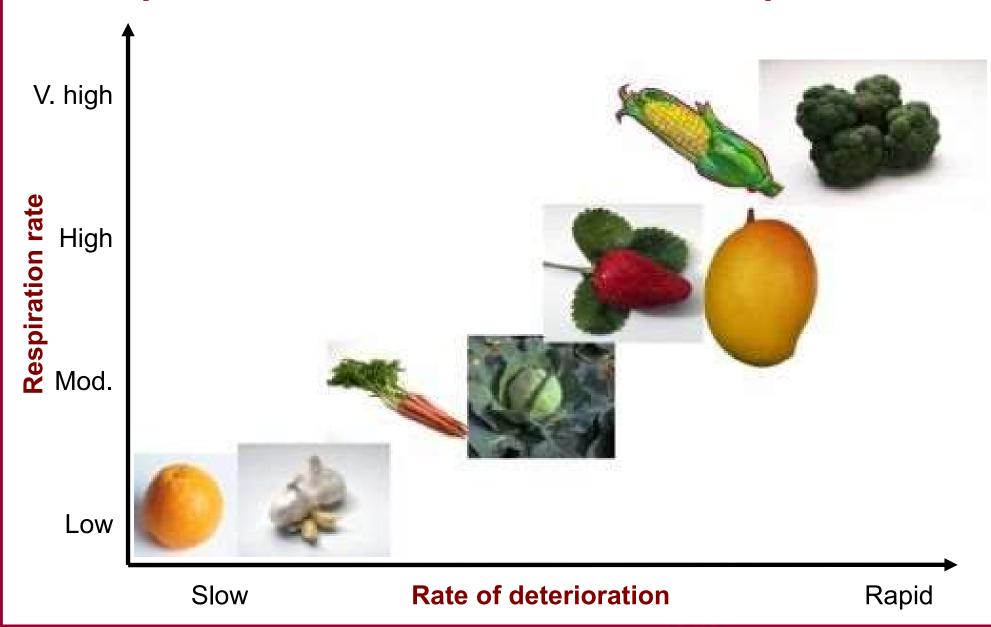
Relative change



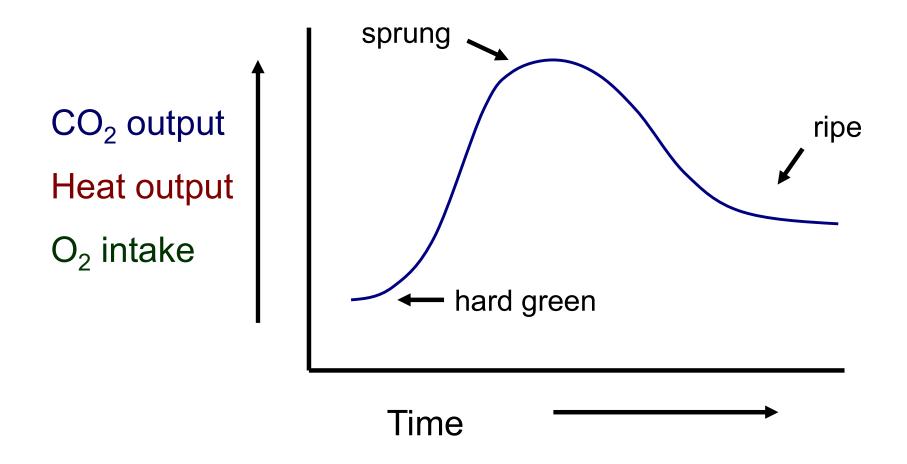
## Respiration – an important process

Fruit is still alive Carbon Starch dioxide Converts Oxygen to Heat Sugars Water External **Ethylene** 

## Respiration rate varies with produce



## Respiration rises during ripening

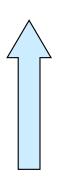


Respiration rises as mango ripens to sprung stage and then falls

## What affects respiration?

#### Temperature

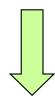
rise from 20 to 25°C increases respiration peak by 70%



#### Ethylene

respiration peak at
18°C is 40% higher
under 5ppm ethylene

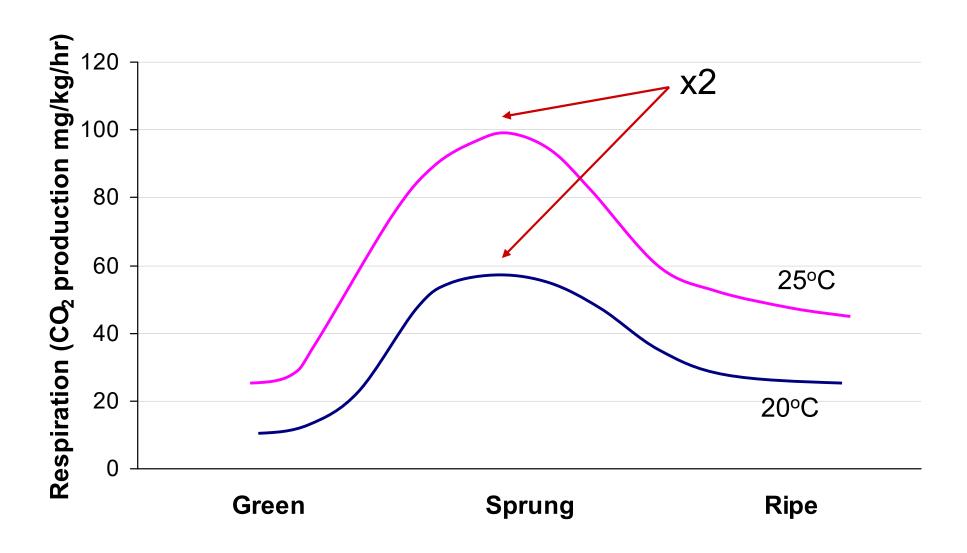
## Respiration



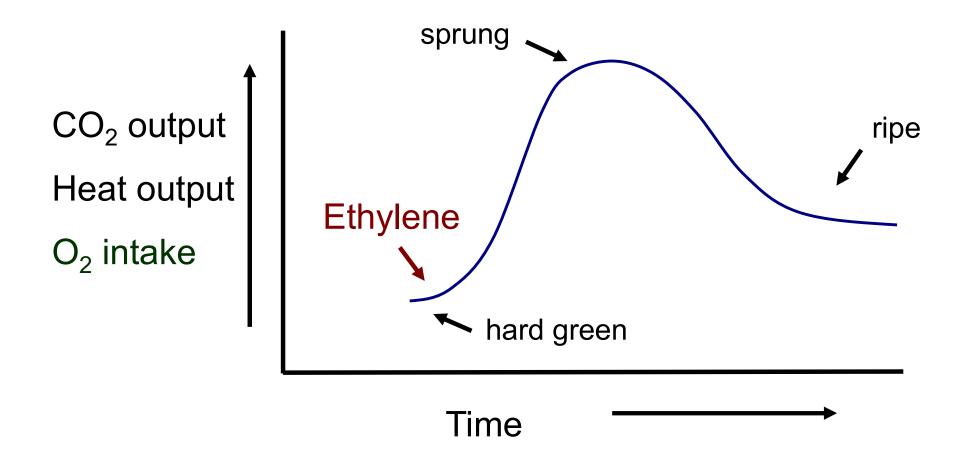
### Atmosphere

- reducing oxygen reduces respiration

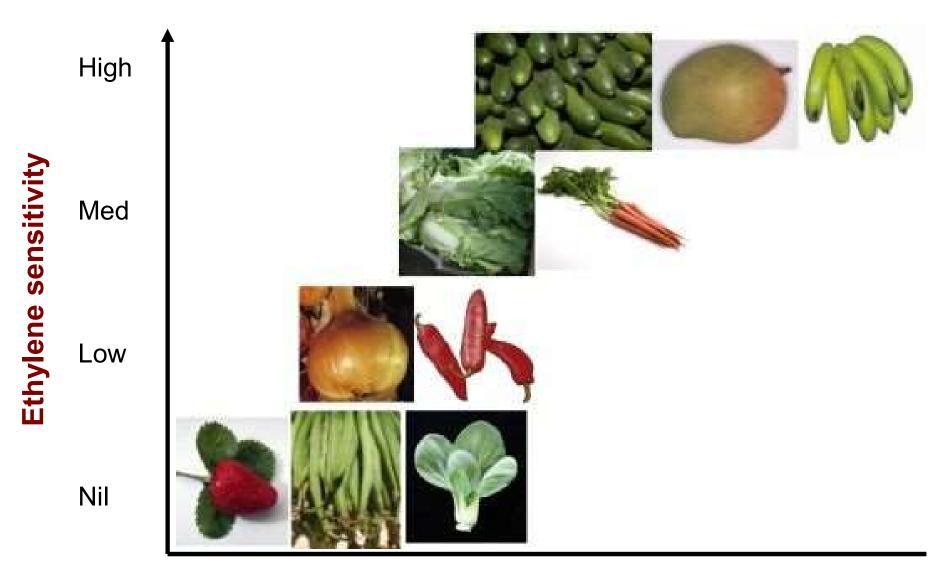
## Temperature affects respiration



# Ethylene triggers ripening and rise in respiration



## Ethylene sensitivity



**Product** 

## Ethylene production

Very high

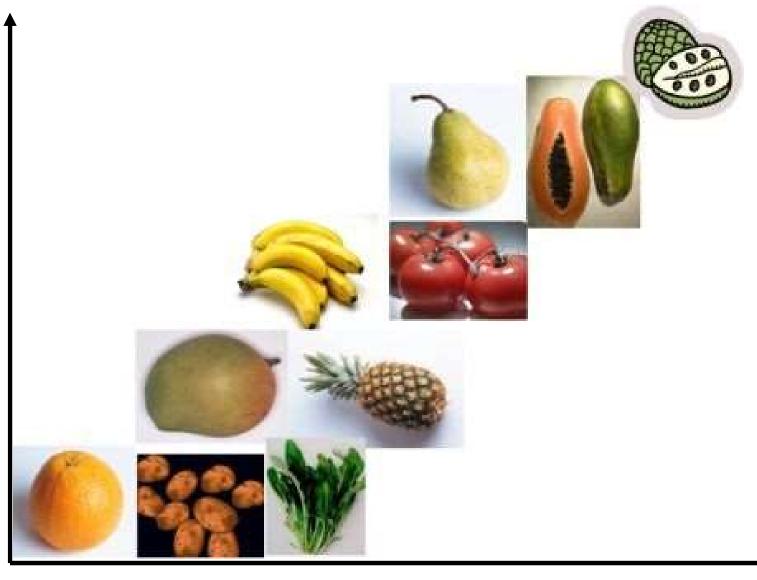
Ethylene production

High

Med

Low

Very low



**Product** 

# Ethylene improves ripening uniformity

No ethylene 7 days 20°C



Ethylene 2 days + 5 days 20°C

# High CO<sub>2</sub> reduces skin yellowing

Air

4.5% CO<sub>2</sub>





Ethylene for 2 days at 20°C and then 3 days in air or CO<sub>2</sub>