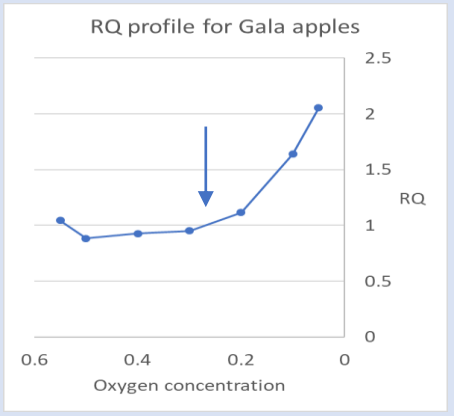
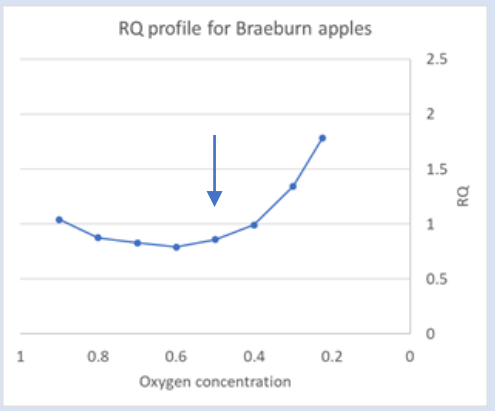
SafePod project 2017: findings relating to Gala

During the first two seasons of the SafePod project we have carried out trials of fruit samples stored in independent Pods located in the temperature controlled stores of the Jim Mount Building, Produce Quality Centre, while also monitoring the respiratory behaviour and storage quality of fruit in commercial stores.

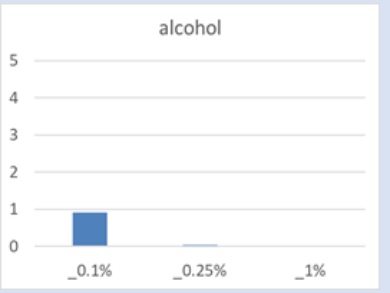
The RQ response is used to check the sensitivity of fruit to low oxygen



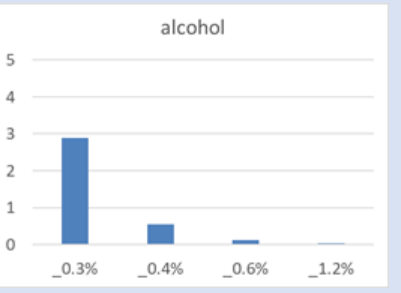


Alcohol detected (per 5 fruit) by O_2 conc

Gala



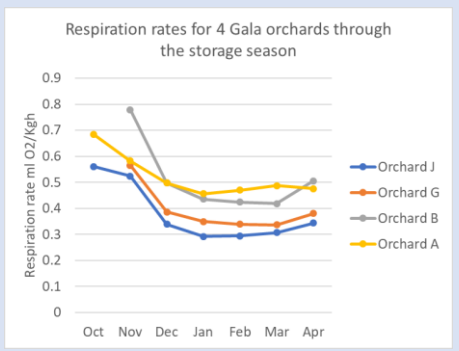
Braeburn

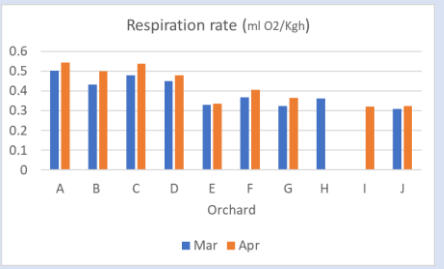


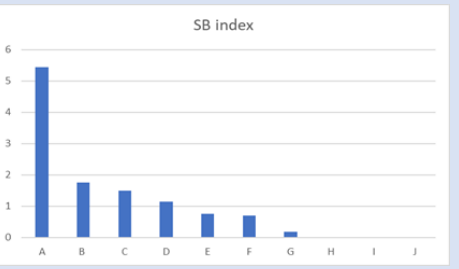
An increase in the RQ (respiratory quotient = CO2 produced/O2 consumed) indicates that fruit is stressed and is starting to ferment. Comparison of Gala and Braeburn consistently shows that Gala is more resistant to low O2 stress than Braeburn. In the graphs above, Gala shows an increase in RQ between 0.3 and 0.2% O2, whereas Braeburn reacts earlier at about 0.5% O2

This fits with observations that Braeburn is more prone to low oxygen damage than Gala.
For example alcohol is detected in Braeburn at higher concentrations than in Gala

Respiration rates appear to enable us to predict development of disorders







Fruit respiration changes through the storage season, and there is a clear difference between orchards.

This season commercial Gala stores suffered from senescent breakdown
Our data indicates that high respiration rates measured in March and April were related to subsequent breakdown. In future we can use this as a prediction