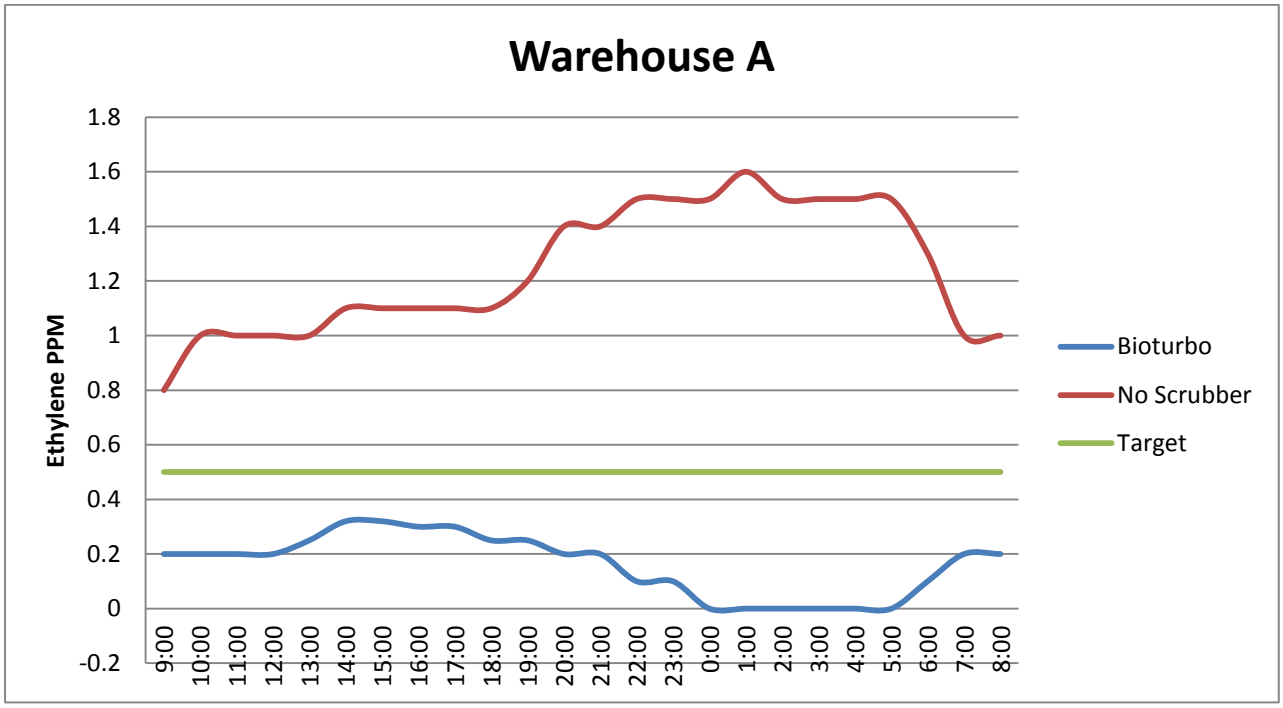
Bioturbo Results and Summary

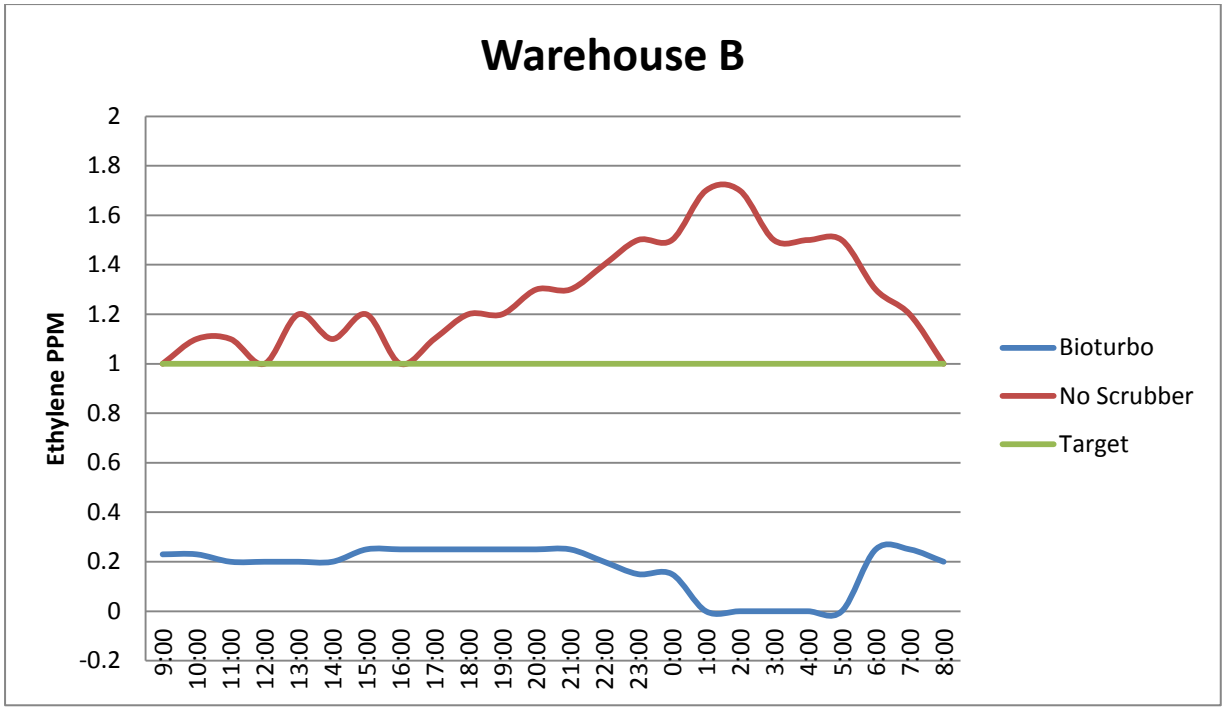
The Bio turbo ethylene removal system was installed in our warehouses in March 2012. These replaced our potassium permanganate system that we had previously installed in our old fruit warehouses.

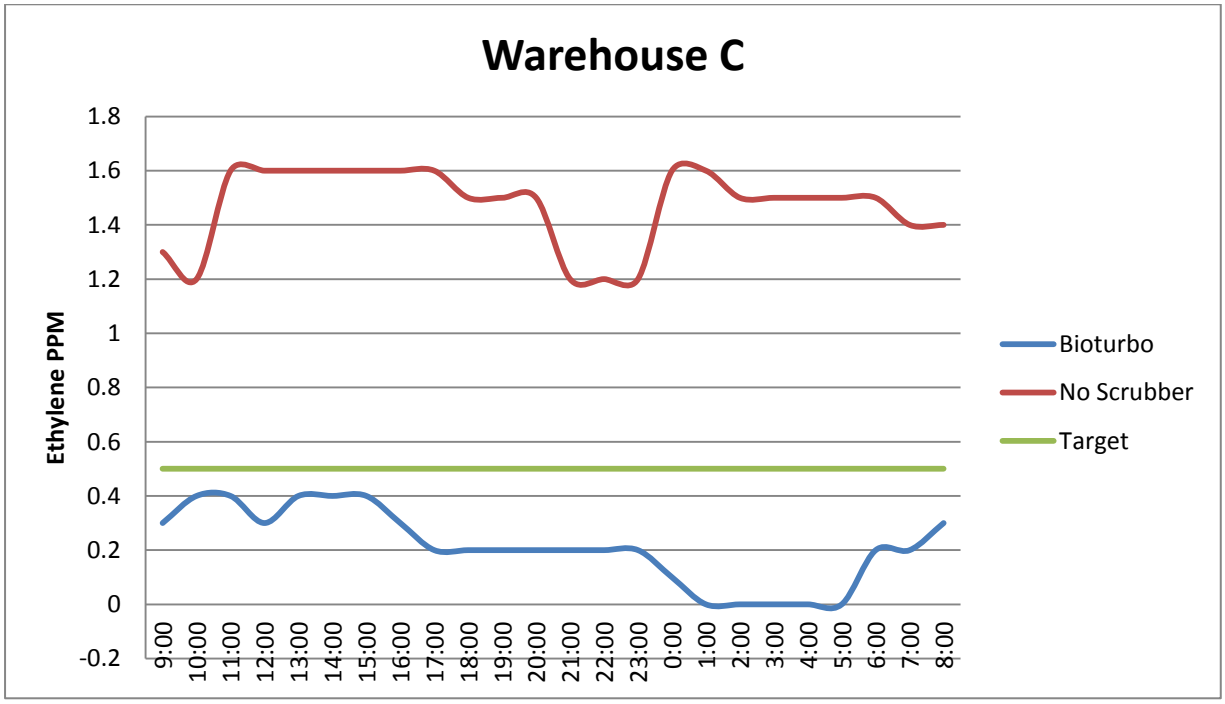
Below is a table showing the size of each warehouse, the type of Bioturbo system installed and the target level of ethylene we wanted to achieve. The target levels are based on the type of fruit typically stored in each warehouse and its sensitivity to ethylene.

Warehouse	Warehouse size (cm^3)	Bioturbo Unit	Target Ethylene Level (ppm)
A	2777	6000	0.5
B	2652	6000	1
C	5576	6000	0.5

The graphs below show the average ethylene ppm in each warehouse over 24hours with and with out the Bioturbo systems installed. For each set of data the ethylene levels were recorded for 24hrs over 4 consecutive days. An average was the calculated of the 4 different ethylene levels at each hour. The target level for each room is shown by the green line in each of the graphs. The target levels are based on the type of product stored in each warehouse and their sensitivity to ethylene.







All the graphs show that the ethylene levels without the Bioturbo units were generally above the target level. The levels vary throughout the day and this is due to a number of factors such as the volume of fruit at the time and the movement within the warehouses. The levels tend to be lower during production hours as there is a lot of movement of the fruit within the warehouses and we have a lot of doors being opened and closed which displaces the air within the warehouses and therefore some of the ethylene. However out of production hours the levels of ethylene increase without the Bioturbo units.

With the Bioturbo units the ethylene levels are kept below the target ppm throughout the day. Ain there is some variation in the levels throughout the day but this can be attributed to the same reasons as before. The main difference with the Bioturbo units being installed is that out of production times the ethylene in the warehouse decreases to 0. This shows that in a closed environment the Bioturbo units are able to eliminate the ethylene in a room over time.

Overall these results show that the Bioturbo units are meeting our current requirements and are able to deal with the ethylene produced by our current varieties and volumes of fruits. More tests will be done throughout the year to determine if the units still manage to meet our target levels when we have increase in fruit volumes and different varieties of fruit.