This is a reproducible document

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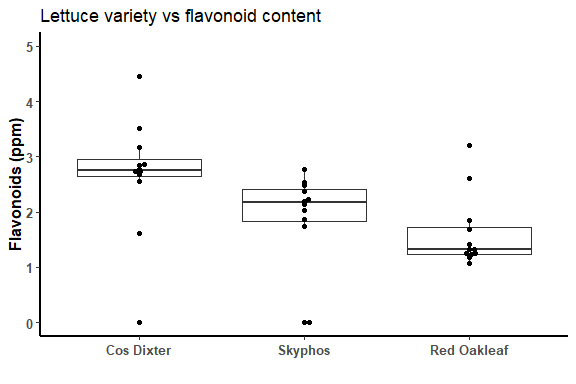
18th June 2019

# This is the beginning of the project

Our intial reports might be restricted to lab meetings etc. We can use R Markdown to show the code we are using, so that the meetings are not just a demonstration of the results, but also an examination of the code used to obtain them.

## Data overview

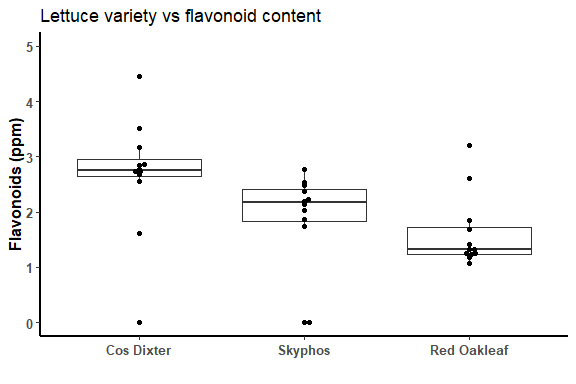
The plot below is call from the ggplot object entitled report\_plot created in the script 03\_final\_analysis.R.



**Fig. 1.** Flavonoid content of three lettuce varieties under three experimental conditions.

Or we can also recreate the code within the R Markdown document as seen below.

source("scripts/01\_data\_clean.R")  
  
lettuce\_variety <- c(cos = "Cos Dixter",  
 red = "Red Oakleaf",  
 sky = "Skyphos")  
  
data %>%  
 filter(week\_no == "3") %>%  
 ggplot(aes(x = variety, y = flavonoids)) +  
   
 geom\_boxplot(outlier.shape = NA) + # Hides the outlier points   
 geom\_beeswarm() +  
   
 scale\_x\_discrete(breaks = c("cos", "red", "sky"),  
 labels = c("Cos Dixter", "Red Oakleaf", "Skyphos")) +  
   
 ylim(0,5) +  
   
 labs(x = "",  
 y = "Flavonoids (ppm)",  
 title = "Lettuce variety vs flavonoid content") +  
   
 theme(panel.background = element\_blank(), #Remove grey background  
 axis.title = element\_text(face = "bold", size = 12),  
 axis.text = element\_text(face = "bold", size = 10),  
 axis.line = element\_line(colour = "black", size = 1),  
 plot.title = element\_text(hjust = 0.0))



## Statisital tests

This table summarises the statistical tests we conducted in the script 03\_analysis.R“.

**Table 1.** Two way Analysis of Variance of flavonoid content by lettuce type and filter.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Comparison | Estimate | Lower CI | Upper CI | Adjusted p-value |
| variety | cos-red | 1.044 | 0.118 | 1.970 | 0.024 |
| variety | sky-red | 0.245 | -0.681 | 1.171 | 0.794 |
| variety | sky-cos | -0.799 | -1.725 | 0.127 | 0.101 |
| filter\_name | my-ca | -0.110 | -1.036 | 0.816 | 0.954 |
| filter\_name | ptp-ca | -0.122 | -1.048 | 0.804 | 0.943 |
| filter\_name | ptp-my | -0.012 | -0.938 | 0.914 | 0.999 |

From the data, the choice filter used did not alter the the flavonoid content of the lettuce varieties tested.

The flavonoid content of Cos Dixter was observed to be higer overall than Red Oakleaf (1.044 ppm, 95% CI: 0.118 - 1.97).

## Conclusion

All of the information presented here can be traced all the way back to the raw CSV data file. If an error is detected, it can be corrected. If Reviewer #2 needs up to change any element of the work, it can be done in a straighforward manner.

### Reviewer # 2 comments

I don’t like B/W images. Give me some colour!

### Response

No problem

