Abbreviations for treatments -
CS: Carbon Source
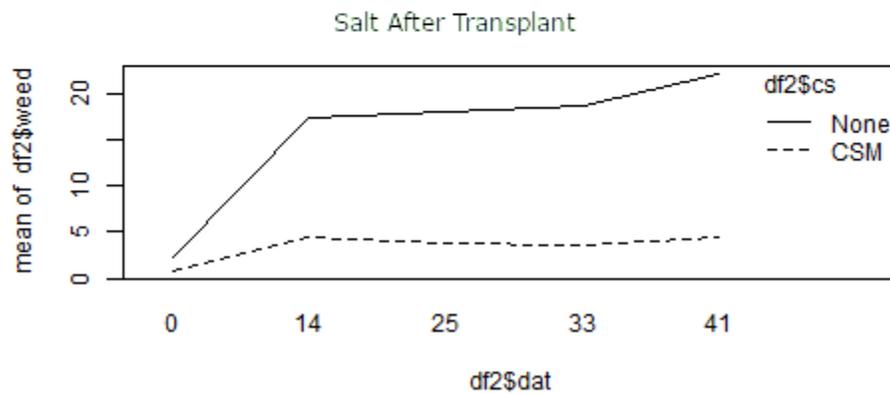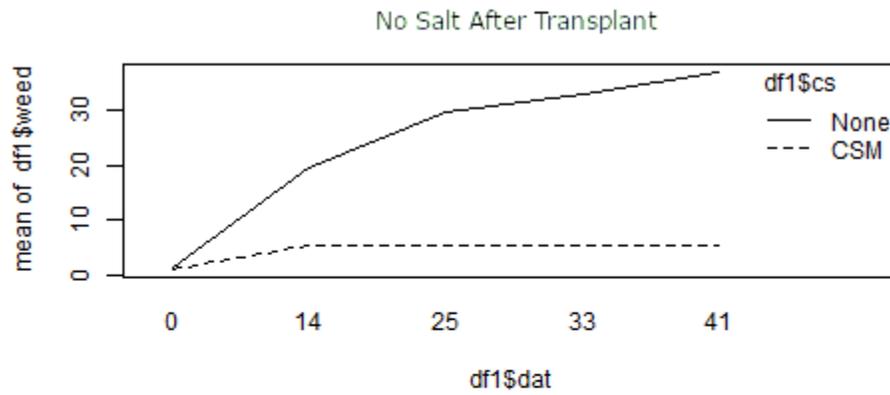CSM: cotton seed meal
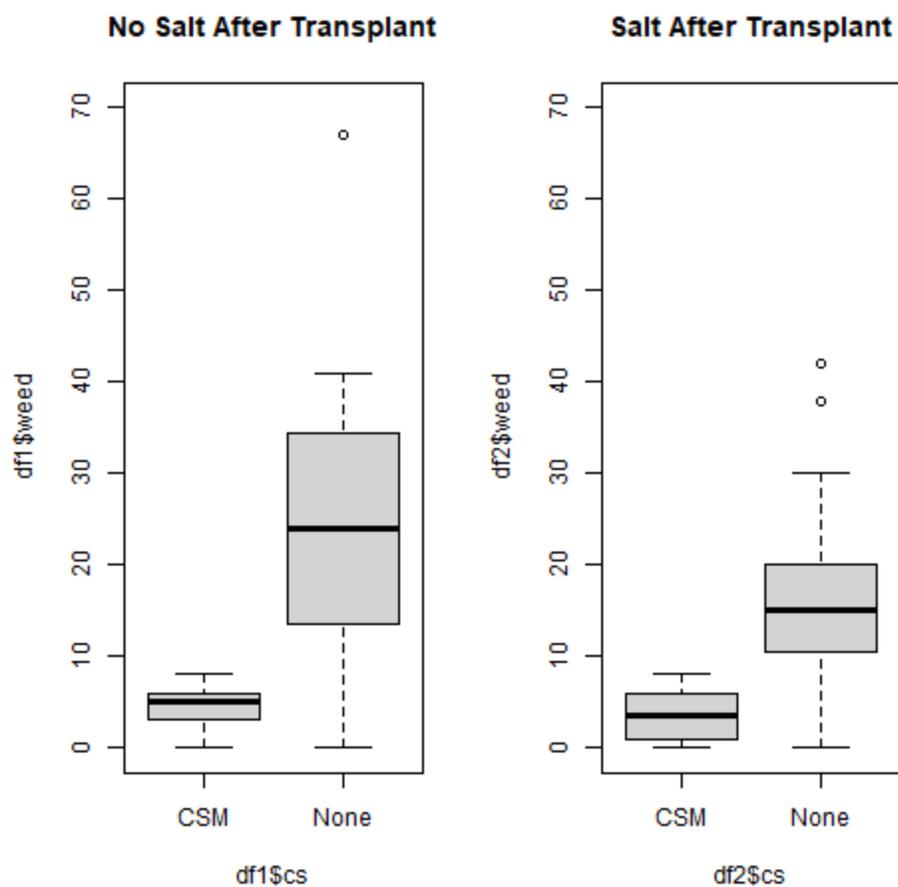DAT: Days after initiating ASD
Water_an: Water during ASD conditions
Water_fr: Water after termination of ASD

1. WEEDS

No Salt After Transplant

Salt After Transplant

No Salt After Transplant   ## Salt After Transplant


```
Residuals:
      Min       1Q   Median       3Q      Max
 -17.0522  -3.1445  -0.5879   2.0705  27.9478

Coefficients:
                         Estimate Std. Error t value Pr(>|t|)
(Intercept)               2.97715    2.07737   1.433   0.1546
dat                       0.09762    0.09784   0.998   0.3206
csNone                    7.42971    2.93784   2.529   0.0128 *
water_frsalt             -1.05697    2.64001  -0.400   0.6897
water_ansalt              0.72500    1.40918   0.514   0.6079
dat:csNone                0.74489    0.13837   5.383 4.12e-07 ***
dat:water_frsalt         -0.02760    0.11983  -0.230   0.8183
csNone:water_frsalt      -0.66246    3.59810  -0.184   0.8543
dat:csNone:water_frsalt  -0.42068    0.16947  -2.482   0.0145 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 6.302 on 111 degrees of freedom
Multiple R-squared:  0.7202,    Adjusted R-squared:  0.7001
F-statistic: 35.72 on 8 and 111 DF,  p-value: < 2.2e-16
```

There was a significant (p = 0.018) 3-way interaction between Days after Treatment (ASD initiated), carbon source, and water during the trial. Buckets watered with saline water had less weeds overall. Starting at 2-weeks post ASD, weed emergence slowed significantly in the saltwater treated buckets, but continued in the untreated buckets.

Later in the trial, buckets treated with both ASD and salt water started to show an increase in the number of weeds, meaning that the additional salt water might shorten the effective duration of ASD treatments. ASD was still very effective regardless, this was a very weak effect.

2. WATERMELON PLANT WEIGHTS
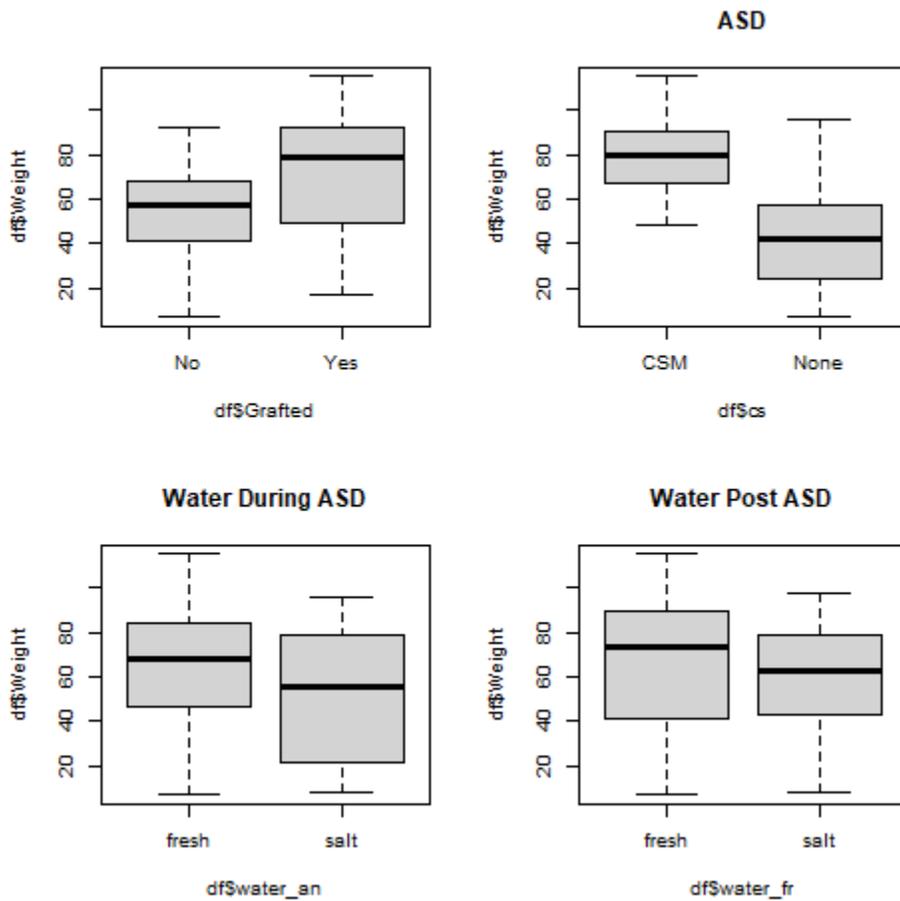
```
Residuals:
    Min      1Q  Median      3Q     Max
-34.006 -11.734  -0.166  14.298  52.776

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)   76.746      5.740  13.371  < 2e-16 ***
csNone       -35.130      5.134  -6.843 2.17e-08 ***
water_frsalt  -2.875      6.288  -0.457  0.64980
GraftedYes    17.996      5.134   3.505  0.00108 **
water_ansalt -13.812      6.288  -2.197  0.03348 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 17.78 on 43 degrees of freedom
Multiple R-squared:  0.6097,    Adjusted R-squared:  0.5734
F-statistic: 16.79 on 4 and 43 DF,  p-value: 2.319e-08
```
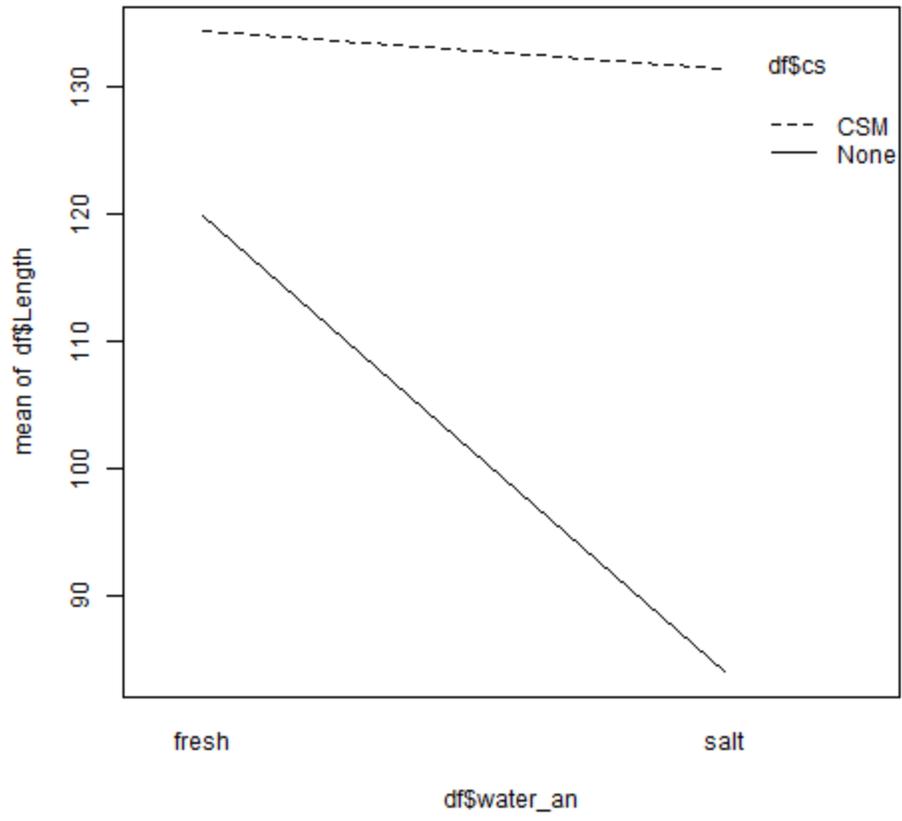
For the final plant weights (fresh mass), the addition of CSM significantly improved plant weight, I think you've discussed this in the past.
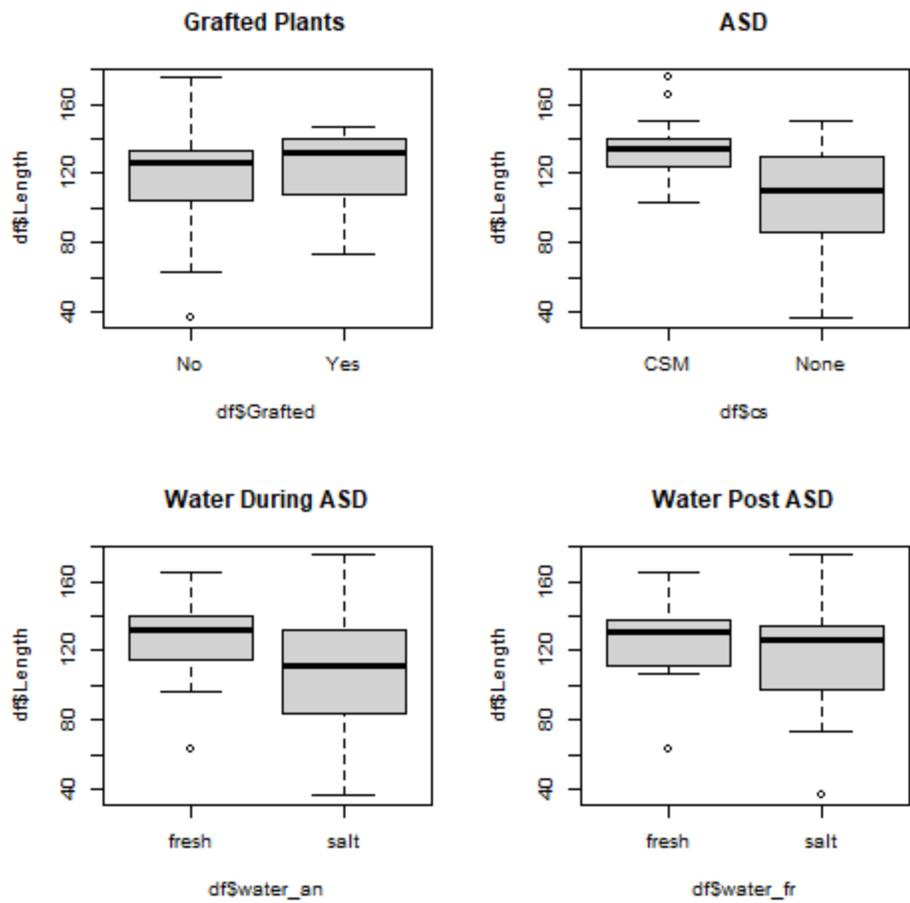
Grafting also saw a significant increase in plant weight, if the rootstock was CSB there should be plenty of resources discussing this. *C. amarus* plants generally grow faster so it isn't that surprising.

The salt water during the plant growth was not significant; however the use of salt water during the ASD period negatively affected watermelon growth. It appeared it slowed down after that initial growth period before watermelons start really forming vines,?).

There weren't any significant interactions in this dataset

3. WATERMELON PLANT LENGTHS

Grafted Plants

df$Length

No   Yes

df$Grafted

ASD

df$Length

CSM   None

df$cs

Water During ASD

df$Length

fresh   salt

df$water_an

Water Post ASD

df$Length

fresh   salt

df$water_fr

```
Residuals:
    Min      1Q  Median      3Q     Max
-53.049  -8.387   0.317   8.705  45.376

Coefficients:
                    Estimate Std. Error t value Pr(>|t|)
(Intercept)          130.995      7.073  18.521   <2e-16 ***
csNone               -14.446      7.387  -1.956   0.0572 .
water_ansalt          -4.604      9.773  -0.471   0.6400
GraftedYes             3.122      6.032   0.518   0.6074
water_frsalt           3.492      7.387   0.473   0.6388
csNone:water_ansalt  -33.020     12.795  -2.581   0.0134 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 20.89 on 42 degrees of freedom
Multiple R-squared:  0.4483,    Adjusted R-squared:  0.3826
F-statistic: 6.825 on 5 and 42 DF,  p-value: 9.703e-05
```

For the watermelon vine lengths the biggest effect came from an interaction between the CSM and the addition of salt during ASD. Just speculating, it might be a mineral specific thing. The additional organic matter might be reducing the competition between Na^+ and other nutrients like calcium, which influence shoot development. Pretty much everything else was negligible.