

Report: Testing hybrid vigor in the lab in response to
Eimeria

Alice

24 August 2018

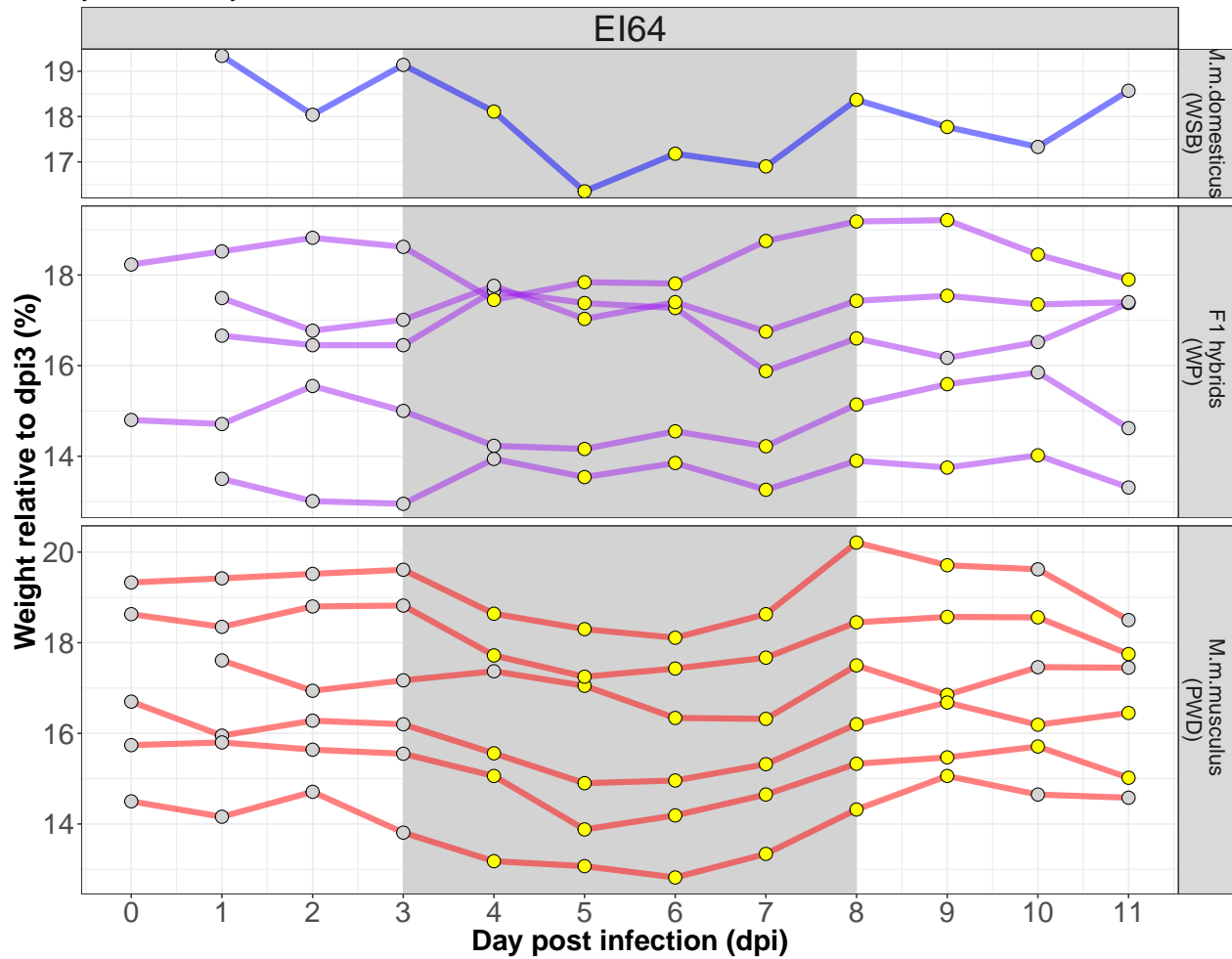
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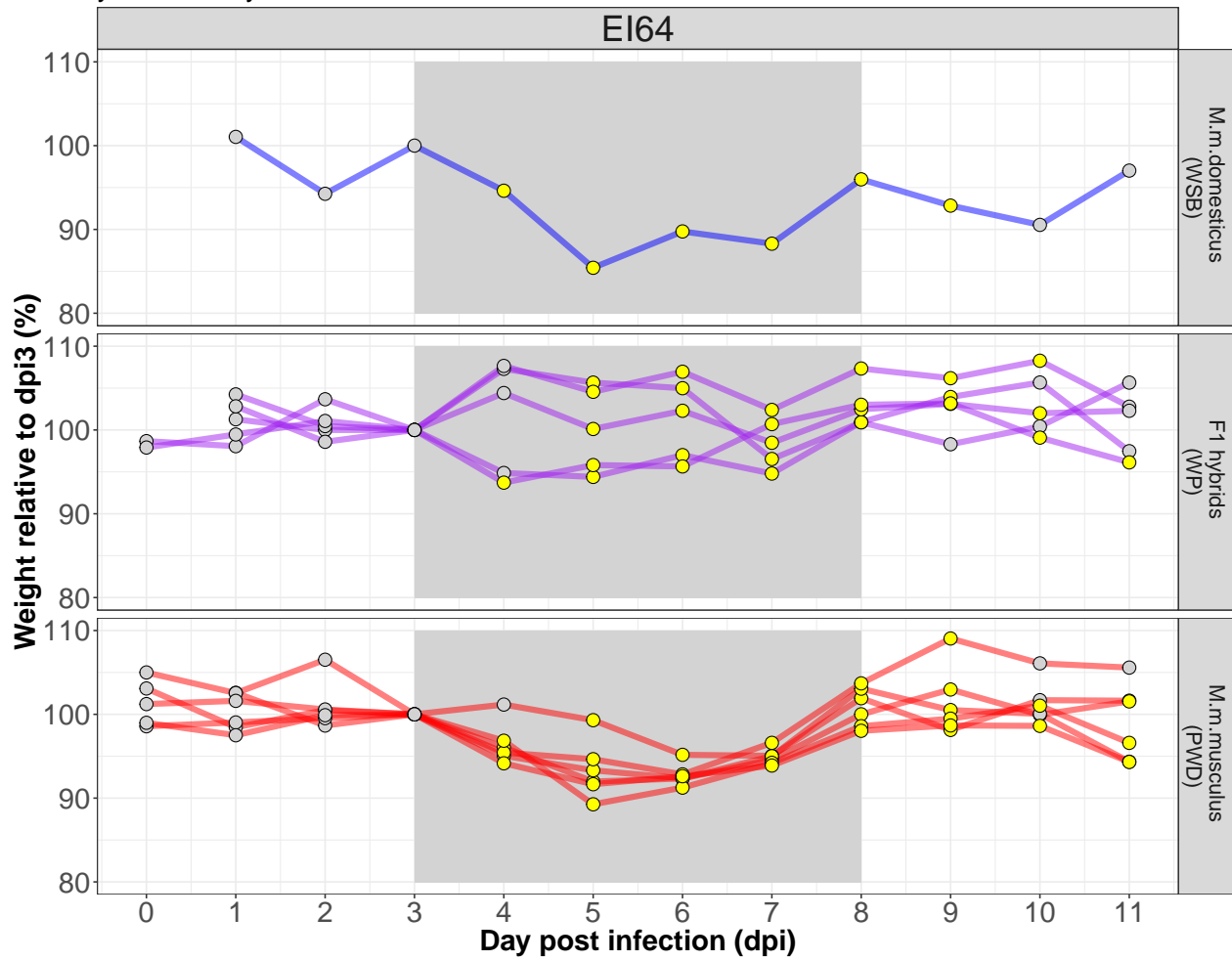
Expe_001, March 2017, Francisca's experiment. infection with E64 and Eflab

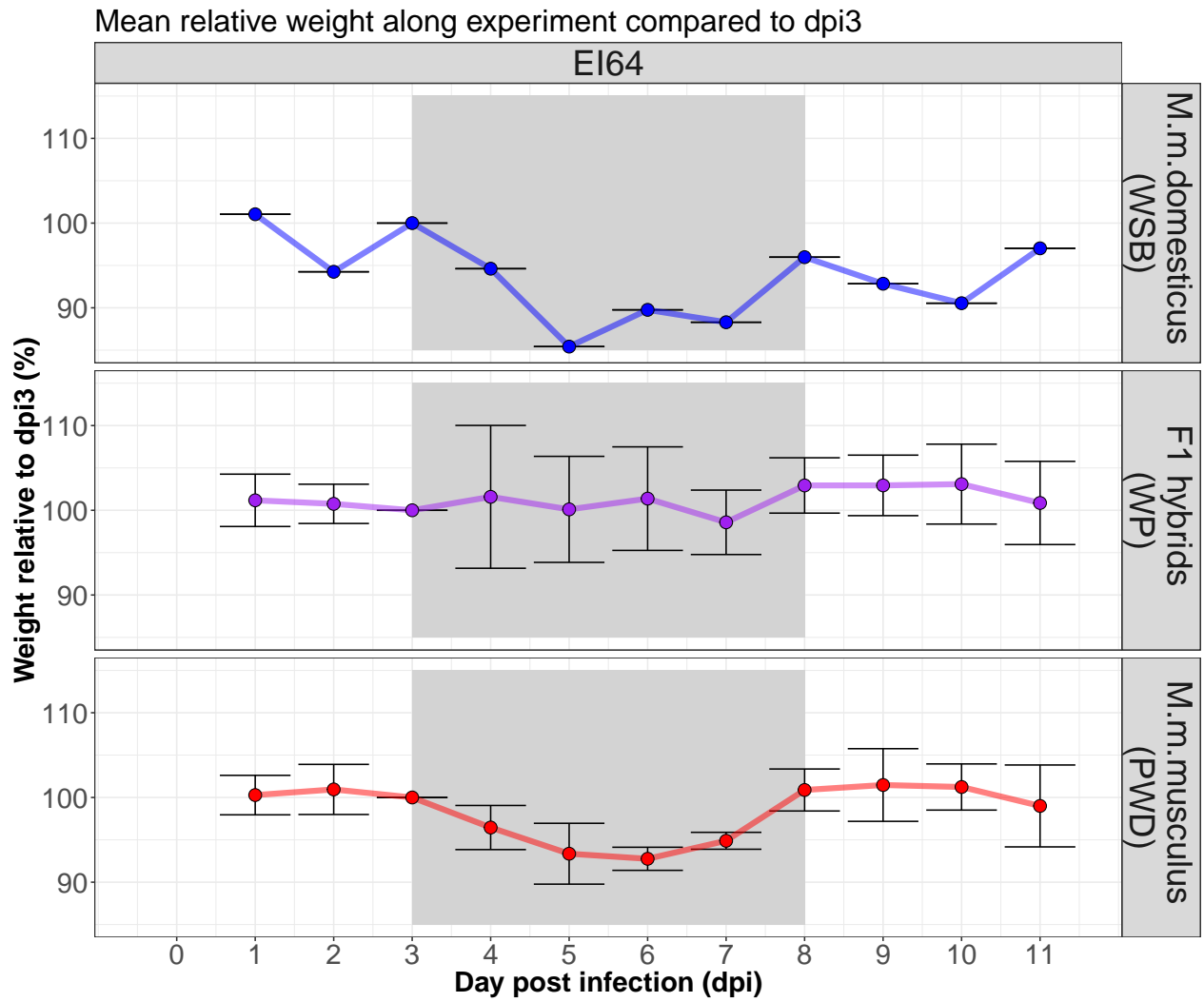
1. Weight loss

Weight along experiment compared to dpi3
yellow : oocysts detected in feces

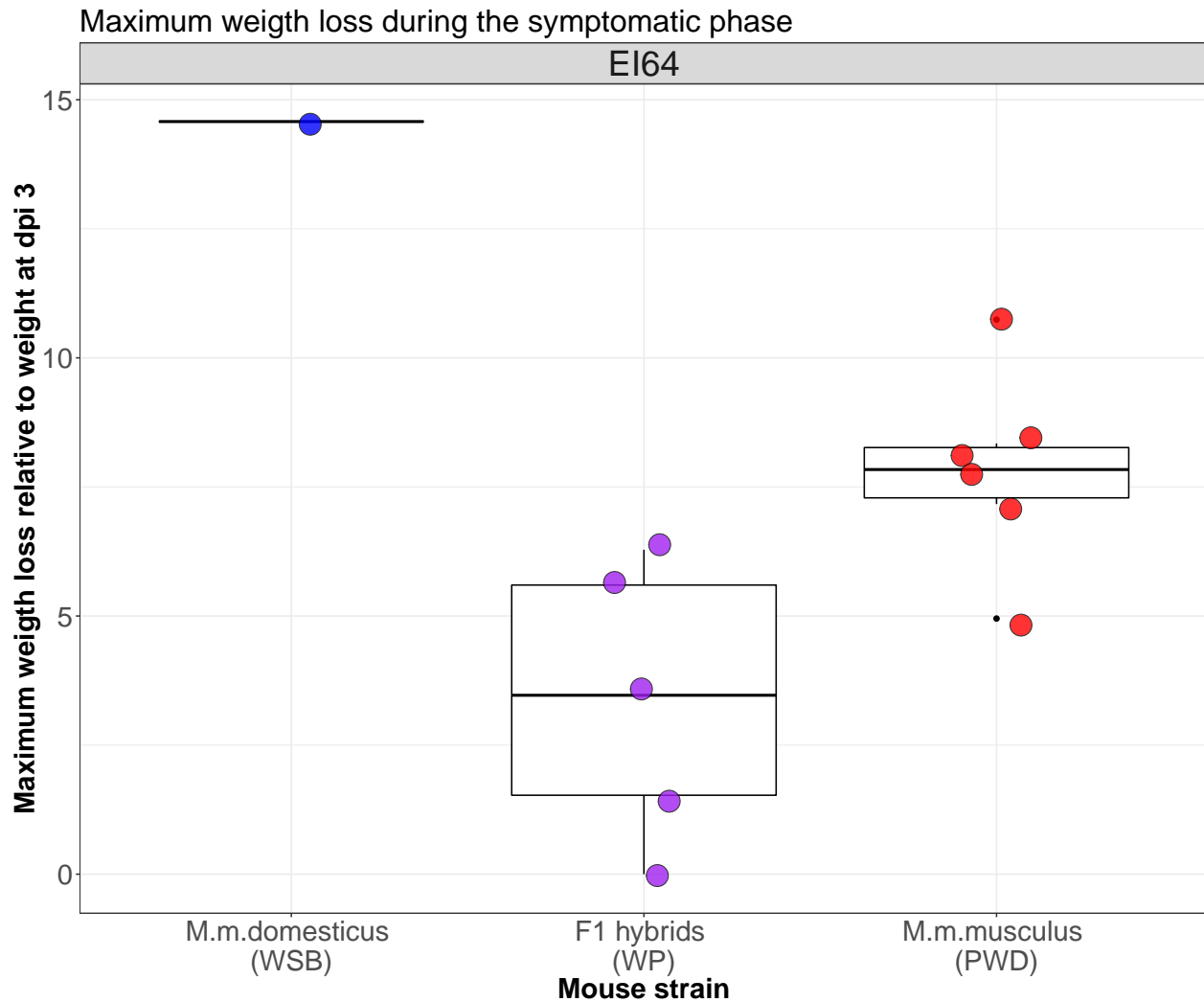


Relative weight along experiment compared to dpi3
 yellow : oocysts detected in feces



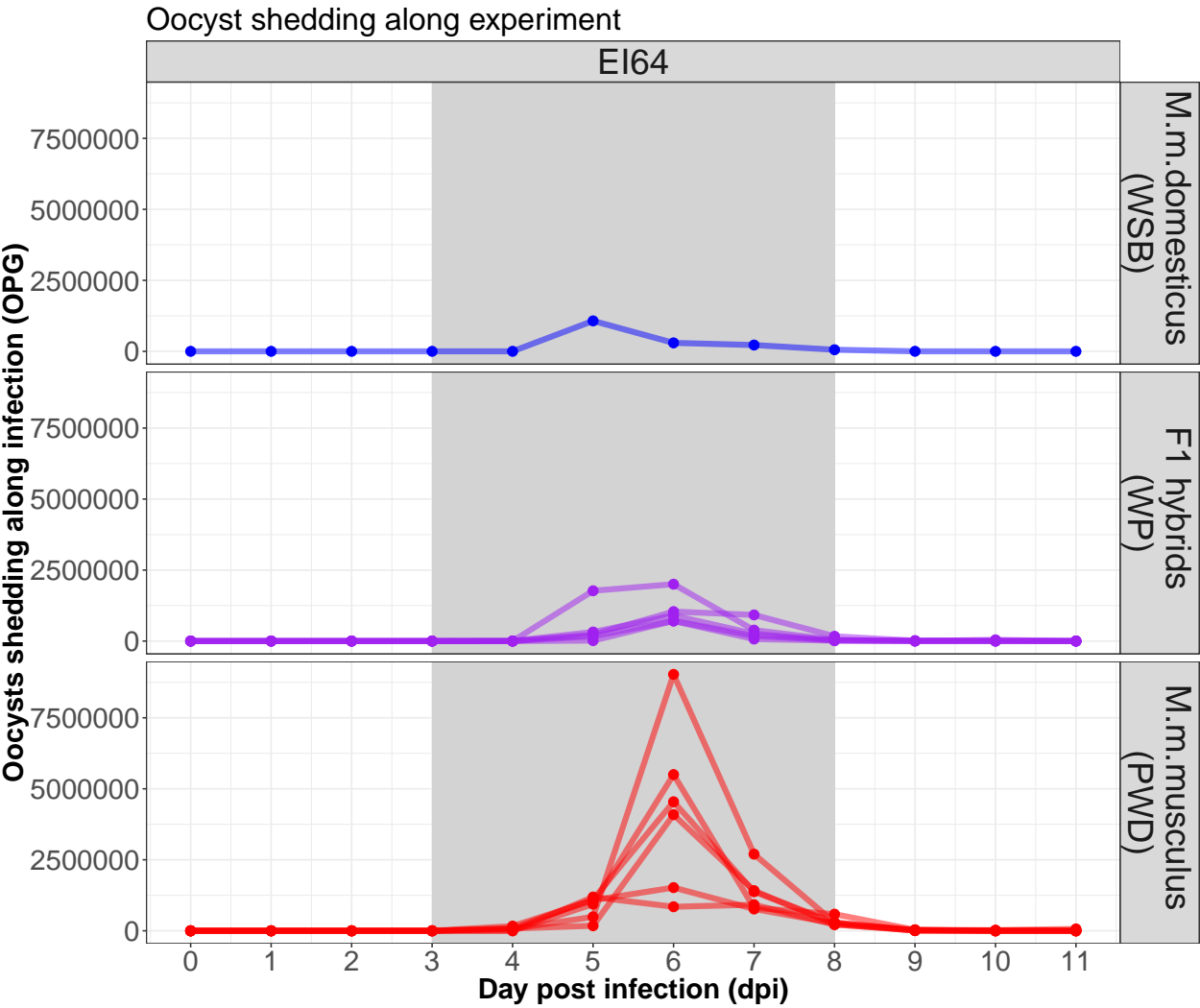


For statistical analysis, we compare the maximum relative weight loss between the different groups. We limit our analysis to the period : dpi3 to dpi8 (symptomatic period for E64 strain).

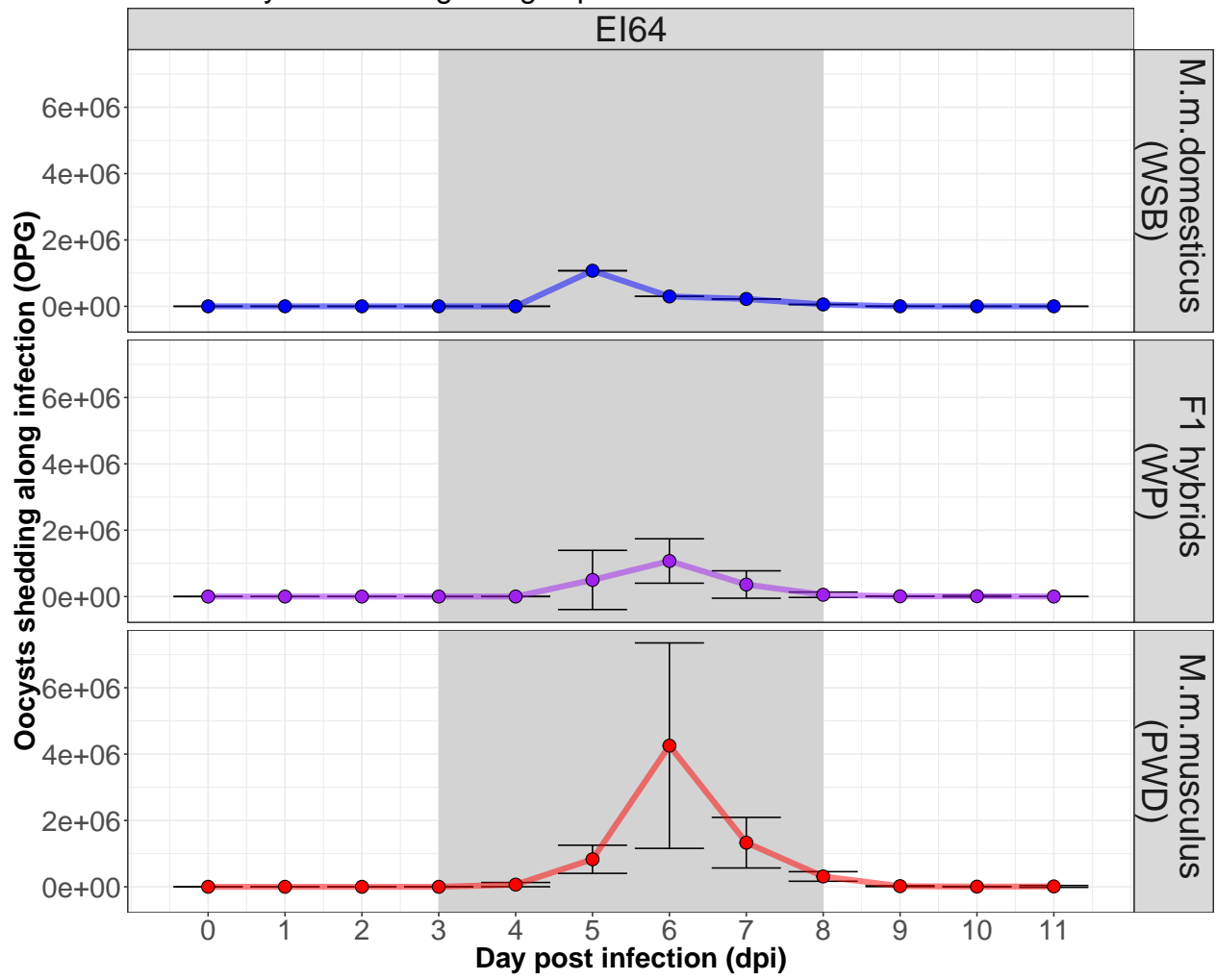


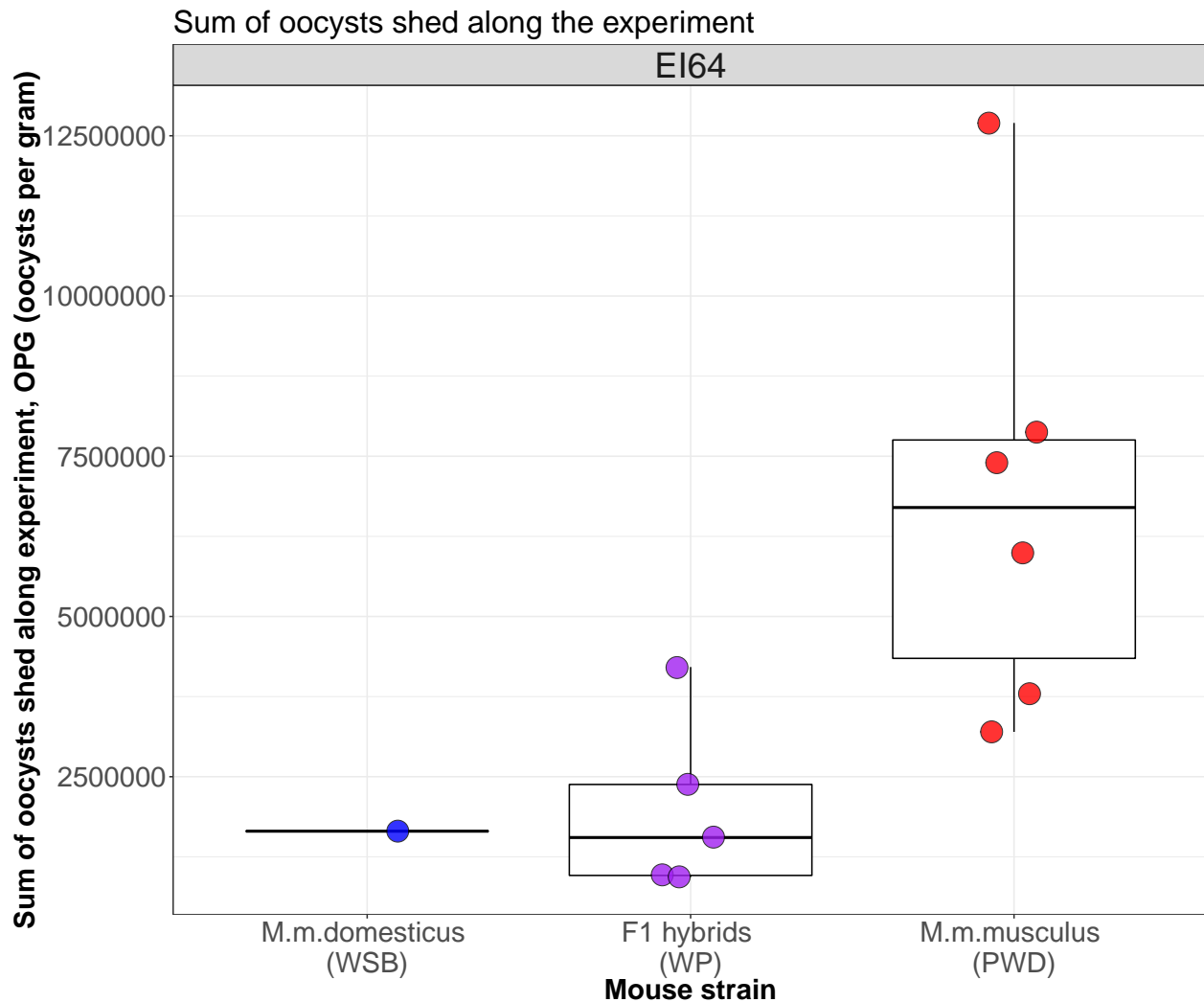
```
##
## Call:
## lm(formula = relativeWeight ~ Mouse_strain, data = max.loss_001)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -2.9271 -0.9534 -0.0448  0.9445  3.3754
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)      85.423      2.254   37.890 3.08e-11 ***
## Mouse_strainF1 hybrids \n(WP)    11.201      2.470    4.536  0.00141 **
## Mouse_strainM.m.musculus \n(PWD)   6.764      2.435    2.778  0.02148 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 2.254 on 9 degrees of freedom
## Multiple R-squared:  0.7311, Adjusted R-squared:  0.6714
## F-statistic: 12.24 on 2 and 9 DF, p-value: 0.002711
```

2. Parasite shedding



Mean oocysts shedding along experiment

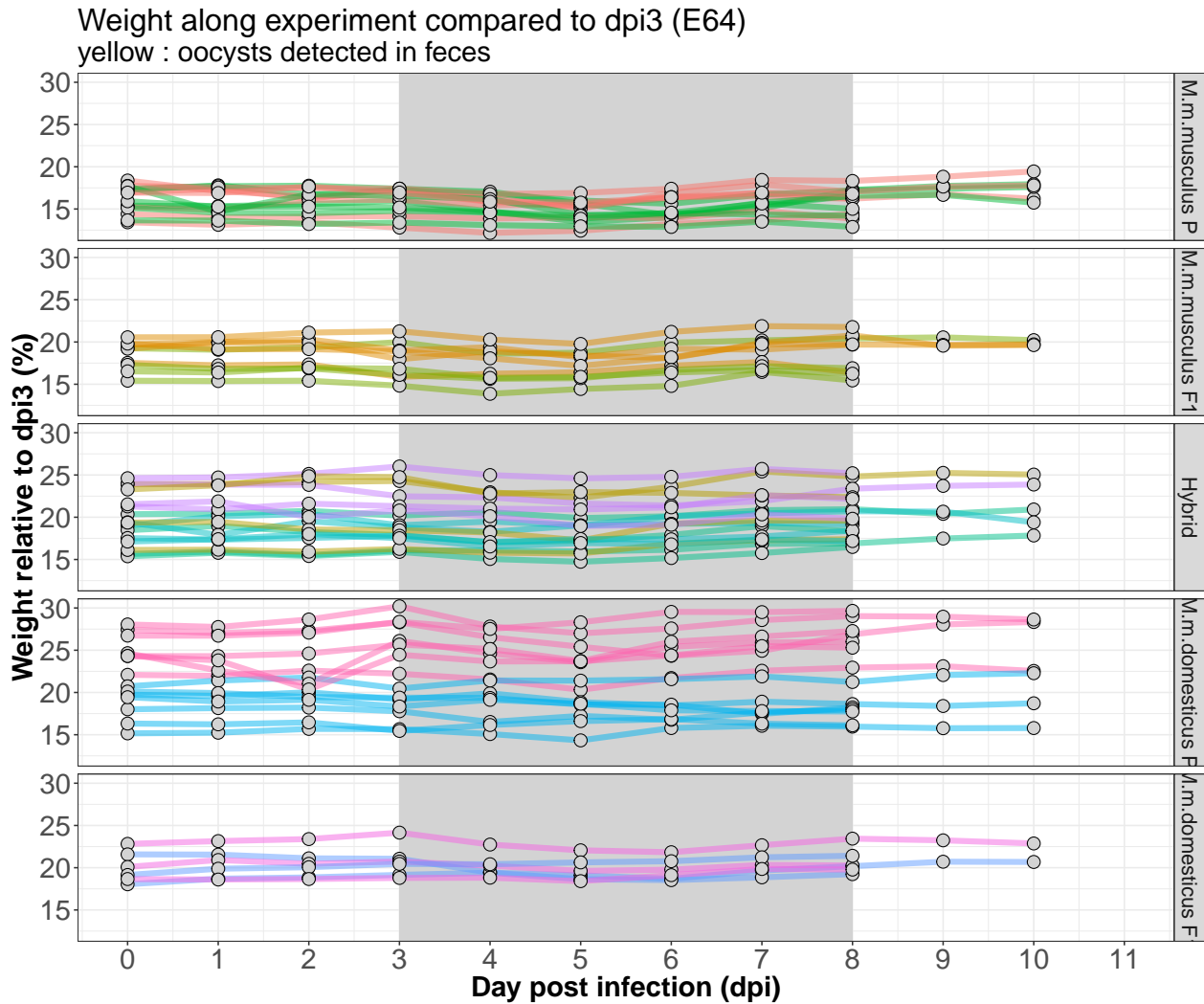




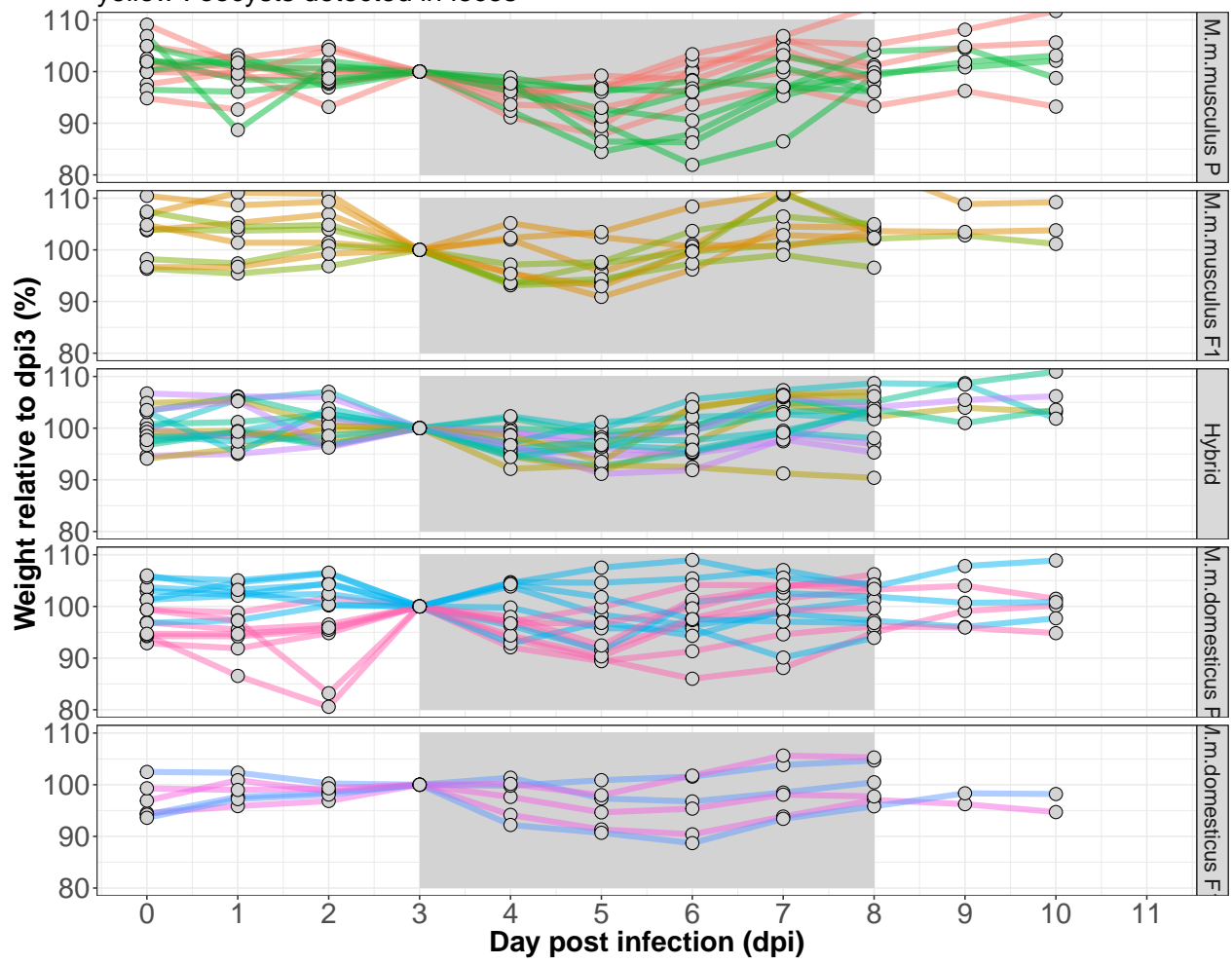
```
##
## Call:
## lm(formula = sum.oo ~ Mouse_strain, data = sum.oocysts_001)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -3628205 -1053694  -228126   693597  5872235
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)      1649898    2716134   0.607   0.559
## Mouse_strainF1 hybrids \n(WP)      357449    2975376   0.120   0.907
## Mouse_strainM.m.musculus \n(PWD)  5177664    2933760   1.765   0.111
##
## Residual standard error: 2716000 on 9 degrees of freedom
## Multiple R-squared:  0.5187, Adjusted R-squared:  0.4117
## F-statistic: 4.849 on 2 and 9 DF, p-value: 0.03724
```

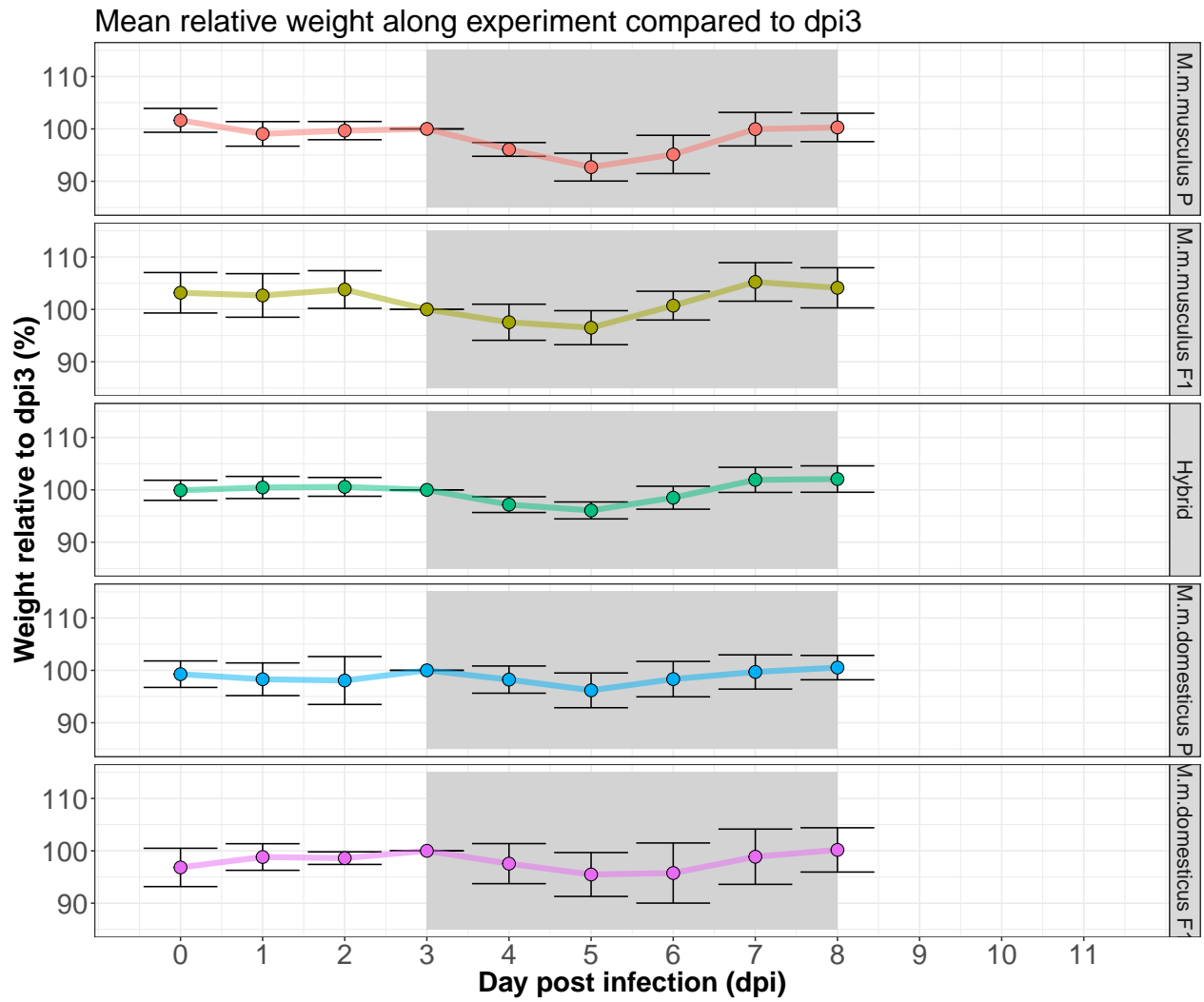

Expe_005, July 2018, FULL experiment (parents, intra specific and inter species hybrids) BUSNA, STRA, SCHUNT, PWD, infection with Eferrisi (E64 and E139)

1. Weight loss

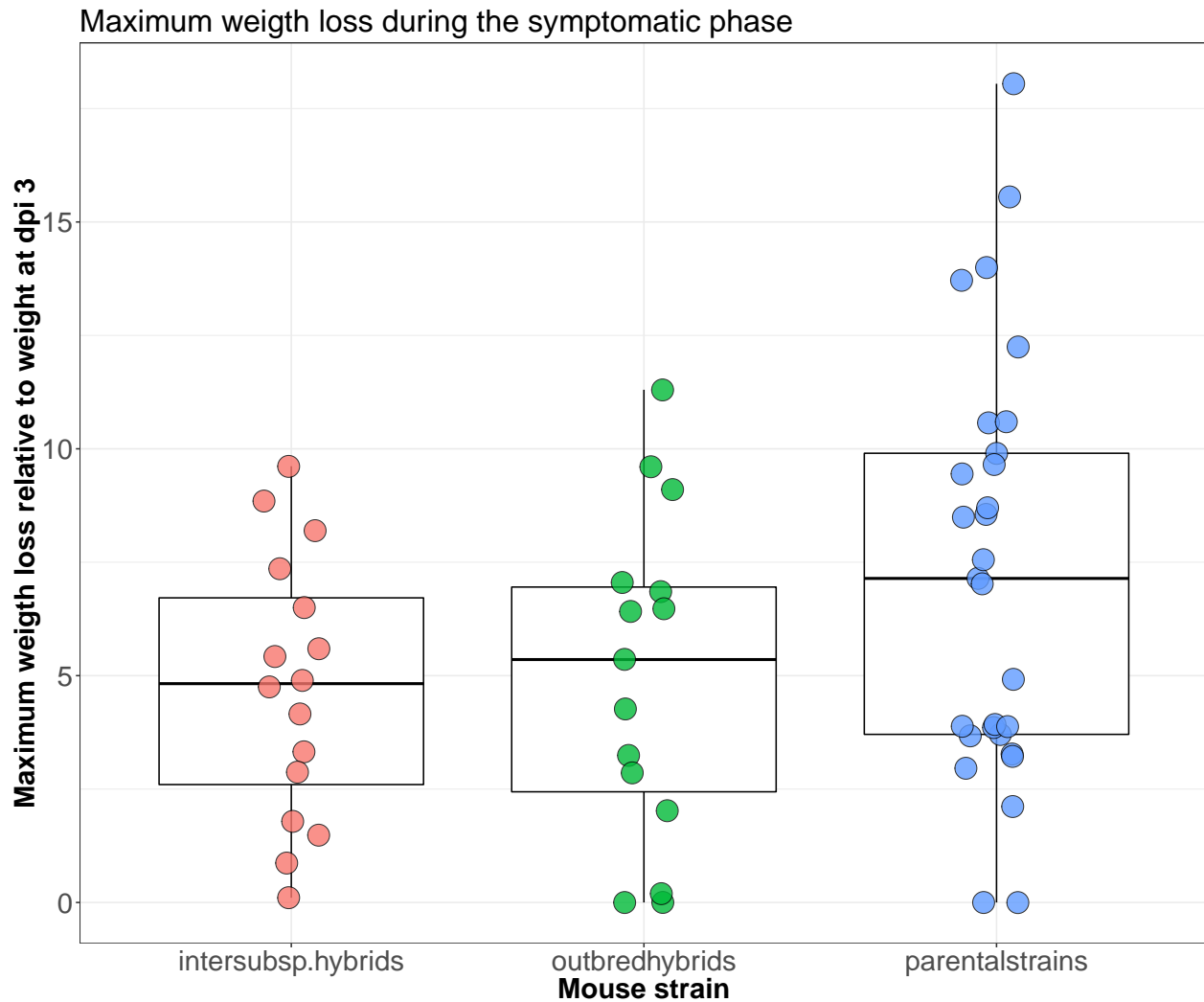


Relative weight along experiment compared to dpi3 (E64)
 yellow : oocysts detected in feces





For statistical analysis, we compare the maximum relative weight loss between the different groups. We limit our analysis to the period : dpi3 to dpi8 (symptomatic period for E64 strain).



```
##
## Call:
## lm(formula = relativeWeight ~ HybridStatus, data = max.loss_005_E64)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -10.784  -2.451  -0.088   3.381   7.262
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    95.2644    0.9968  95.569  <2e-16 ***
## HybridStatusoutbredhybrids  -0.2467    1.4330  -0.172   0.8639
## HybridStatusparentalstrains -2.5264    1.2417  -2.035   0.0466 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 3.987 on 57 degrees of freedom
## Multiple R-squared:  0.08785,    Adjusted R-squared:  0.05585
## F-statistic: 2.745 on 2 and 57 DF,  p-value: 0.07275
```