# DvN_Results

Bumblebat

12/11/2023

Effect size (ES) between pollination effectiveness measures

, fig.height = 8, fig.width = 8, out.width = "8.5in"

```
##
## Multivariate Meta-Analysis Model (k = 1100; method: REML)
##
## Variance Components:
##
##             estim    sqrt  nlvls  fixed           factor    R
## sigma^2.1  0.1660  0.4074    136     no         study_ID   no
## sigma^2.2  0.6138  0.7834   1100     no        effect_ID   no
## sigma^2.3  0.0000  0.0001    140     no            phylo  yes
## sigma^2.4  0.0352  0.1877    140     no   accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 1085) = 12228.7017, p-val < .0001
##
## Test of Moderators (coefficients 2:15):
## QM(df = 14) = 144.0705, p-val < .0001
##
## Model Results:
##
##                                                                       estimate
## intrcpt                                                                 0.1258
## treatment_effectiveness_metricfruit set                                -0.0685
## treatment_effectiveness_metricpollen deposition                        -0.0021
## treatment_effectiveness_metricseed mass                                -0.2611
## treatment_effectiveness_metricseed set                                  0.2443
## treatmentopen_day                                                      -0.4526
## treatmentopen_night                                                    -0.3025
## treatment_effectiveness_metricfruit set:treatmentopen_day              -0.1721
## treatment_effectiveness_metricpollen deposition:treatmentopen_day      -0.6268
## treatment_effectiveness_metricseed mass:treatmentopen_day               1.2366
## treatment_effectiveness_metricseed set:treatmentopen_day               -0.4216
## treatment_effectiveness_metricfruit set:treatmentopen_night            -0.1959
## treatment_effectiveness_metricpollen deposition:treatmentopen_night    -0.3326
## treatment_effectiveness_metricseed mass:treatmentopen_night             0.7425
## treatment_effectiveness_metricseed set:treatmentopen_night             -0.3122
##                                                                             se
## intrcpt                                                                 0.2321
## treatment_effectiveness_metricfruit set                                 0.2357
## treatment_effectiveness_metricpollen deposition                         0.3490
```

```
## treatment_effectiveness_metricseed mass                                    0.3782
## treatment_effectiveness_metricseed set                                     0.2433
## treatmentopen_day                                                          0.2982
## treatmentopen_night                                                        0.2960
## treatment_effectiveness_metricfruit set:treatmentopen_day                  0.3101
## treatment_effectiveness_metricpollen deposition:treatmentopen_day          0.7313
## treatment_effectiveness_metricseed mass:treatmentopen_day                  0.4934
## treatment_effectiveness_metricseed set:treatmentopen_day                   0.3194
## treatment_effectiveness_metricfruit set:treatmentopen_night                0.3079
## treatment_effectiveness_metricpollen deposition:treatmentopen_night        0.7298
## treatment_effectiveness_metricseed mass:treatmentopen_night                0.4938
## treatment_effectiveness_metricseed set:treatmentopen_night                 0.3169
##                                                                              zval
## intrcpt                                                                     0.5420
## treatment_effectiveness_metricfruit set                                   -0.2908
## treatment_effectiveness_metricpollen deposition                           -0.0060
## treatment_effectiveness_metricseed mass                                   -0.6903
## treatment_effectiveness_metricseed set                                     1.0044
## treatmentopen_day                                                         -1.5178
## treatmentopen_night                                                       -1.0220
## treatment_effectiveness_metricfruit set:treatmentopen_day                 -0.5549
## treatment_effectiveness_metricpollen deposition:treatmentopen_day         -0.8571
## treatment_effectiveness_metricseed mass:treatmentopen_day                  2.5063
## treatment_effectiveness_metricseed set:treatmentopen_day                  -1.3201
## treatment_effectiveness_metricfruit set:treatmentopen_night               -0.6362
## treatment_effectiveness_metricpollen deposition:treatmentopen_night       -0.4558
## treatment_effectiveness_metricseed mass:treatmentopen_night                1.5036
## treatment_effectiveness_metricseed set:treatmentopen_night                -0.9850
##                                                                              pval
## intrcpt                                                                     0.5878
## treatment_effectiveness_metricfruit set                                    0.7712
## treatment_effectiveness_metricpollen deposition                            0.9953
## treatment_effectiveness_metricseed mass                                    0.4900
## treatment_effectiveness_metricseed set                                     0.3152
## treatmentopen_day                                                          0.1291
## treatmentopen_night                                                        0.3068
## treatment_effectiveness_metricfruit set:treatmentopen_day                  0.5789
## treatment_effectiveness_metricpollen deposition:treatmentopen_day          0.3914
## treatment_effectiveness_metricseed mass:treatmentopen_day                  0.0122
## treatment_effectiveness_metricseed set:treatmentopen_day                   0.1868
## treatment_effectiveness_metricfruit set:treatmentopen_night                0.5247
## treatment_effectiveness_metricpollen deposition:treatmentopen_night        0.6485
## treatment_effectiveness_metricseed mass:treatmentopen_night                0.1327
## treatment_effectiveness_metricseed set:treatmentopen_night                 0.3246
##                                                                             ci.lb
## intrcpt                                                                   -0.3291
## treatment_effectiveness_metricfruit set                                   -0.5305
## treatment_effectiveness_metricpollen deposition                           -0.6861
## treatment_effectiveness_metricseed mass                                   -1.0024
## treatment_effectiveness_metricseed set                                    -0.2324
## treatmentopen_day                                                         -1.0370
## treatmentopen_night                                                       -0.8827
## treatment_effectiveness_metricfruit set:treatmentopen_day                 -0.7800
## treatment_effectiveness_metricpollen deposition:treatmentopen_day         -2.0601
```

```
## treatment_effectiveness_metricseed mass:treatmentopen_day        0.2696
## treatment_effectiveness_metricseed set:treatmentopen_day        -1.0475
## treatment_effectiveness_metricfruit set:treatmentopen_night      -0.7993
## treatment_effectiveness_metricpollen deposition:treatmentopen_night  -1.7630
## treatment_effectiveness_metricseed mass:treatmentopen_night      -0.2254
## treatment_effectiveness_metricseed set:treatmentopen_night       -0.9334
##                                                                    ci.ub
## intrcpt                                                           0.5806
## treatment_effectiveness_metricfruit set                          0.3934
## treatment_effectiveness_metricpollen deposition                  0.6820
## treatment_effectiveness_metricseed mass                          0.4802
## treatment_effectiveness_metricseed set                           0.7211
## treatmentopen_day                                                0.1319
## treatmentopen_night                                              0.2777
## treatment_effectiveness_metricfruit set:treatmentopen_day        0.4358
## treatment_effectiveness_metricpollen deposition:treatmentopen_day 0.8065
## treatment_effectiveness_metricseed mass:treatmentopen_day        2.2037  *
## treatment_effectiveness_metricseed set:treatmentopen_day         0.2044
## treatment_effectiveness_metricfruit set:treatmentopen_night      0.4076
## treatment_effectiveness_metricpollen deposition:treatmentopen_night  1.0977
## treatment_effectiveness_metricseed mass:treatmentopen_night      1.7103
## treatment_effectiveness_metricseed set:treatmentopen_night       0.3090
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```


COMPARISONS-1.pdf

3
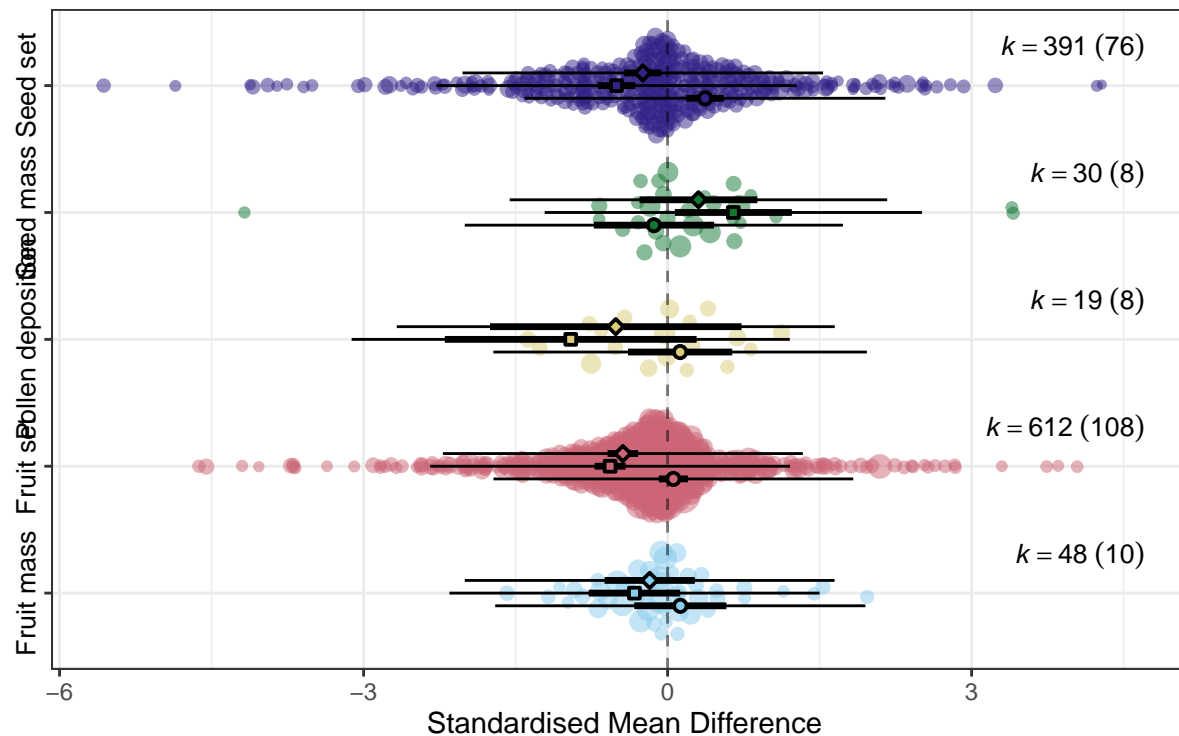
ES between exclusion treatments

##right now this chunk is redundant given above #ignore the next chunk when knitting

ES by Env. vars

```
## **Fruit set and the environment. Order is DvN, OvD, OvN**

## Warning: 7 rows with NAs omitted from model fitting.

##
## Multivariate Meta-Analysis Model (k = 219; method: REML)
##
## Variance Components:
##
##              estim    sqrt  nlvls  fixed          factor    R
## sigma^2.1  0.5795  0.7613    102     no        study_ID   no
## sigma^2.2  0.4187  0.6470    219     no        effect_ID   no
## sigma^2.3  0.0159  0.1262    105     no           phylo  yes
## sigma^2.4  0.3269  0.5718    105     no  accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 216) = 3223.3170, p-val < .0001
##
## Test of Moderators (coefficients 2:3):
## QM(df = 2) = 0.3398, p-val = 0.8437
##
## Model Results:
##
##              estimate      se    zval    pval    ci.lb   ci.ub
## intrcpt        0.1165  0.1282  0.9085  0.3636  -0.1348  0.3677
## sDTR           0.0401  0.0963  0.4169  0.6767  -0.1485  0.2288
## sDaylength     0.0475  0.1119  0.4241  0.6715  -0.1719  0.2668
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

## Warning: 7 rows with NAs omitted from model fitting.

##
## Multivariate Meta-Analysis Model (k = 184; method: REML)
##
## Variance Components:
##
##              estim    sqrt  nlvls  fixed          factor    R
## sigma^2.1  0.2222  0.4714     85     no        study_ID   no
## sigma^2.2  0.0448  0.2116    184     no        effect_ID   no
## sigma^2.3  0.0888  0.2980     86     no           phylo  yes
## sigma^2.4  0.0517  0.2273     86     no  accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 181) = 1374.2167, p-val < .0001
##
## Test of Moderators (coefficients 2:3):
## QM(df = 2) = 0.6836, p-val = 0.7105
```

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```
##
## Model Results:
##
##             estimate      se      zval     pval    ci.lb    ci.ub
## intrcpt      -0.3572  0.1297  -2.7538   0.0059  -0.6113  -0.1030  **
## sDTR          0.0455  0.0618   0.7366   0.4614  -0.0756   0.1666
## sDaylength   -0.0212  0.0699  -0.3031   0.7618  -0.1582   0.1158
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

## Warning: 7 rows with NAs omitted from model fitting.

##
## Multivariate Meta-Analysis Model (k = 188; method: REML)
##
## Variance Components:
##
##             estim    sqrt   nlvls  fixed         factor    R
## sigma^2.1  0.1396  0.3736      88     no       study_ID   no
## sigma^2.2  0.0585  0.2419     188     no      effect_ID   no
## sigma^2.3  0.0000  0.0000      88     no          phylo  yes
## sigma^2.4  0.1954  0.4420      88     no  accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 185) = 1594.5628, p-val < .0001
##
## Test of Moderators (coefficients 2:3):
## QM(df = 2) = 0.8920, p-val = 0.6402
##
## Model Results:
##
##             estimate      se      zval     pval    ci.lb    ci.ub
## intrcpt      -0.4159  0.0753  -5.5207   <.0001  -0.5636  -0.2683  ***
## sDTR         -0.0001  0.0580  -0.0017   0.9986  -0.1138   0.1136
## sDaylength   -0.0651  0.0690  -0.9430   0.3457  -0.2004   0.0702
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

## **Seed set and the environment. Order is DvN, OvD, OvN**

## Warning: 3 rows with NAs omitted from model fitting.

##
## Multivariate Meta-Analysis Model (k = 132; method: REML)
##
## Variance Components:
##
##             estim    sqrt   nlvls  fixed         factor    R
## sigma^2.1  0.0000  0.0000      70     no       study_ID   no
## sigma^2.2  0.1909  0.4369     132     no      effect_ID   no
## sigma^2.3  0.0000  0.0001      68     no          phylo  yes
## sigma^2.4  1.5394  1.2407      68     no  accepted_name   no
##
## Test for Residual Heterogeneity:
```
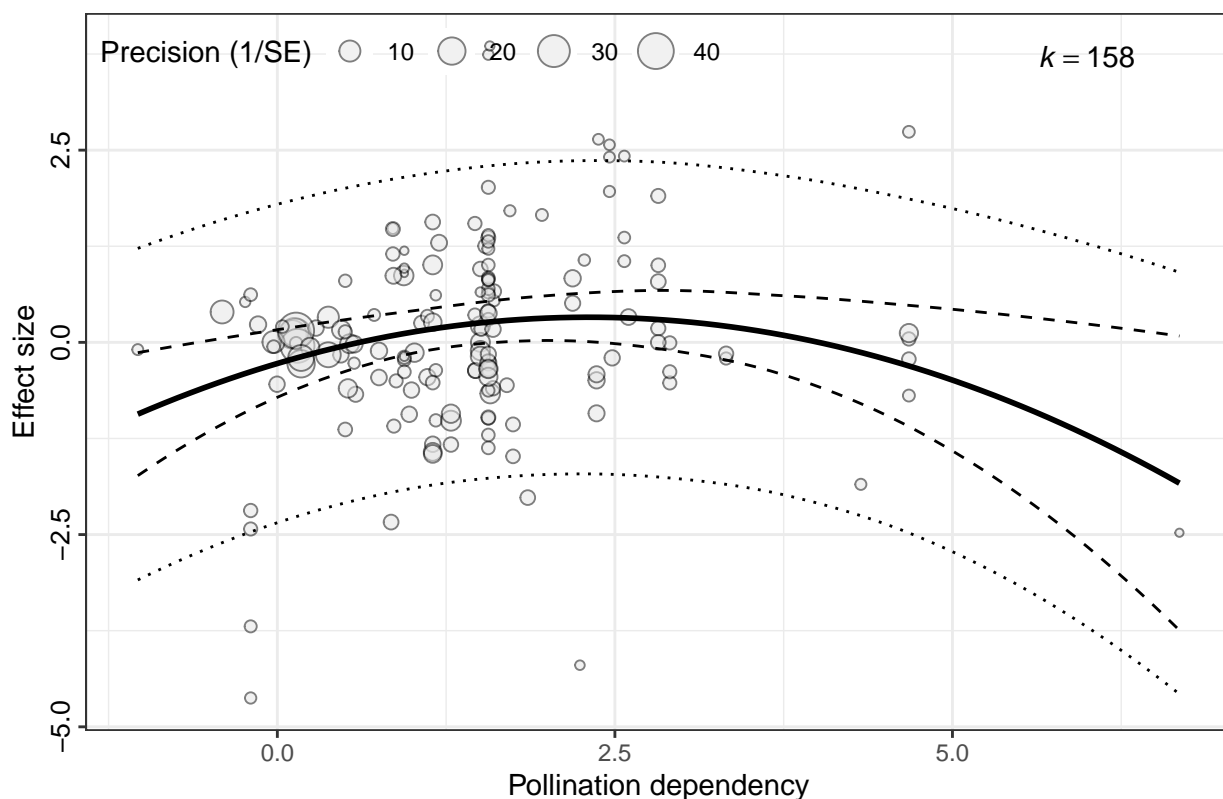
```
## QE(df = 129) = 1366.8256, p-val < .0001
##
## Test of Moderators (coefficients 2:3):
## QM(df = 2) = 1.1271, p-val = 0.5692
##
## Model Results:
##
##            estimate      se    zval    pval    ci.lb   ci.ub
## intrcpt      0.3360  0.1681  1.9990  0.0456   0.0066  0.6655  *
## sDTR         0.1322  0.1390  0.9517  0.3412  -0.1401  0.4046
## sDaylength   0.0545  0.1478  0.3684  0.7126  -0.2353  0.3442
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

## Warning: 3 rows with NAs omitted from model fitting.

##
## Multivariate Meta-Analysis Model (k = 122; method: REML)
##
## Variance Components:
##
##            estim    sqrt  nlvls  fixed         factor    R
## sigma^2.1  0.0000  0.0000     62     no       study_ID   no
## sigma^2.2  0.1454  0.3813    122     no       effect_ID   no
## sigma^2.3  0.0707  0.2660     59     no          phylo  yes
## sigma^2.4  0.4061  0.6373     59     no  accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 119) = 803.7406, p-val < .0001
##
## Test of Moderators (coefficients 2:3):
## QM(df = 2) = 0.4775, p-val = 0.7876
##
## Model Results:
##
##            estimate      se     zval    pval    ci.lb    ci.ub
## intrcpt     -0.4954  0.1532  -3.2328  0.0012  -0.7958  -0.1951  **
## sDTR        -0.0508  0.0996  -0.5098  0.6102  -0.2459   0.1444
## sDaylength  -0.0482  0.1042  -0.4625  0.6438  -0.2525   0.1561
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

## Warning: 3 rows with NAs omitted from model fitting.

##
## Multivariate Meta-Analysis Model (k = 128; method: REML)
##
## Variance Components:
##
##            estim    sqrt  nlvls  fixed         factor    R
## sigma^2.1  0.0338  0.1837     66     no       study_ID   no
## sigma^2.2  0.1128  0.3359    128     no       effect_ID   no
## sigma^2.3  0.0000  0.0001     64     no          phylo  yes
## sigma^2.4  0.7884  0.8879     64     no  accepted_name   no
```
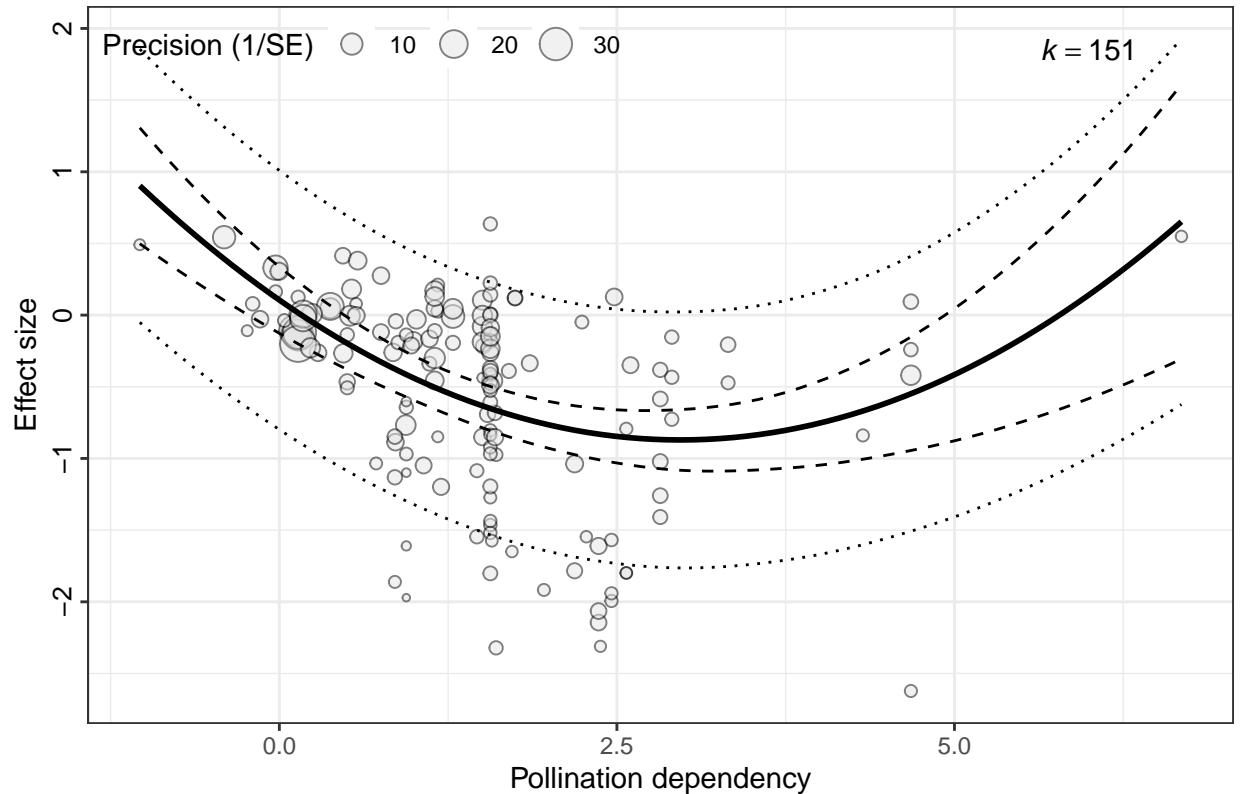
```
## 
## Test for Residual Heterogeneity:
## QE(df = 125) = 825.1934, p-val < .0001
## 
## Test of Moderators (coefficients 2:3):
## QM(df = 2) = 2.3171, p-val = 0.3139
## 
## Model Results:
## 
##              estimate      se     zval    pval    ci.lb    ci.ub
## intrcpt       -0.2717  0.1292  -2.1033  0.0354  -0.5248  -0.0185  *
## sDTR           0.1295  0.1025   1.2628  0.2067  -0.0715   0.3304
## sDaylength     0.0962  0.1184   0.8126  0.4165  -0.1359   0.3284
## 
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

ES by pollination depdency (PD) var

```
## **Fruit set and species-level pollination dependency. Order is DvN, OvD, OvN**
## 
## 
## Multivariate Meta-Analysis Model (k = 158; method: REML)
## 
## Variance Components:
## 
##             estim    sqrt  nlvls  fixed          factor    R
## sigma^2.1  0.3835  0.6193     81     no        study_ID   no
## sigma^2.2  0.4539  0.6737    158     no        effect_ID   no
## sigma^2.3  0.0000  0.0000     76     no           phylo  yes
## sigma^2.4  0.2187  0.4676     76     no  accepted_name   no
## 
## Test for Residual Heterogeneity:
## QE(df = 155) = 1828.0406, p-val < .0001
## 
## Test of Moderators (coefficients 2:3):
## QM(df = 2) = 6.5072, p-val = 0.0386
## 
## Model Results:
## 
##                    estimate      se     zval    pval    ci.lb    ci.ub
## intrcpt             -0.2747  0.2050  -1.3399  0.1803  -0.6764   0.1271
## spp.poll.dep         0.5210  0.2142   2.4325  0.0150   0.1012   0.9408  *
## I(spp.poll.dep^2)   -0.1129  0.0448  -2.5189  0.0118  -0.2007  -0.0250  *
## 
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
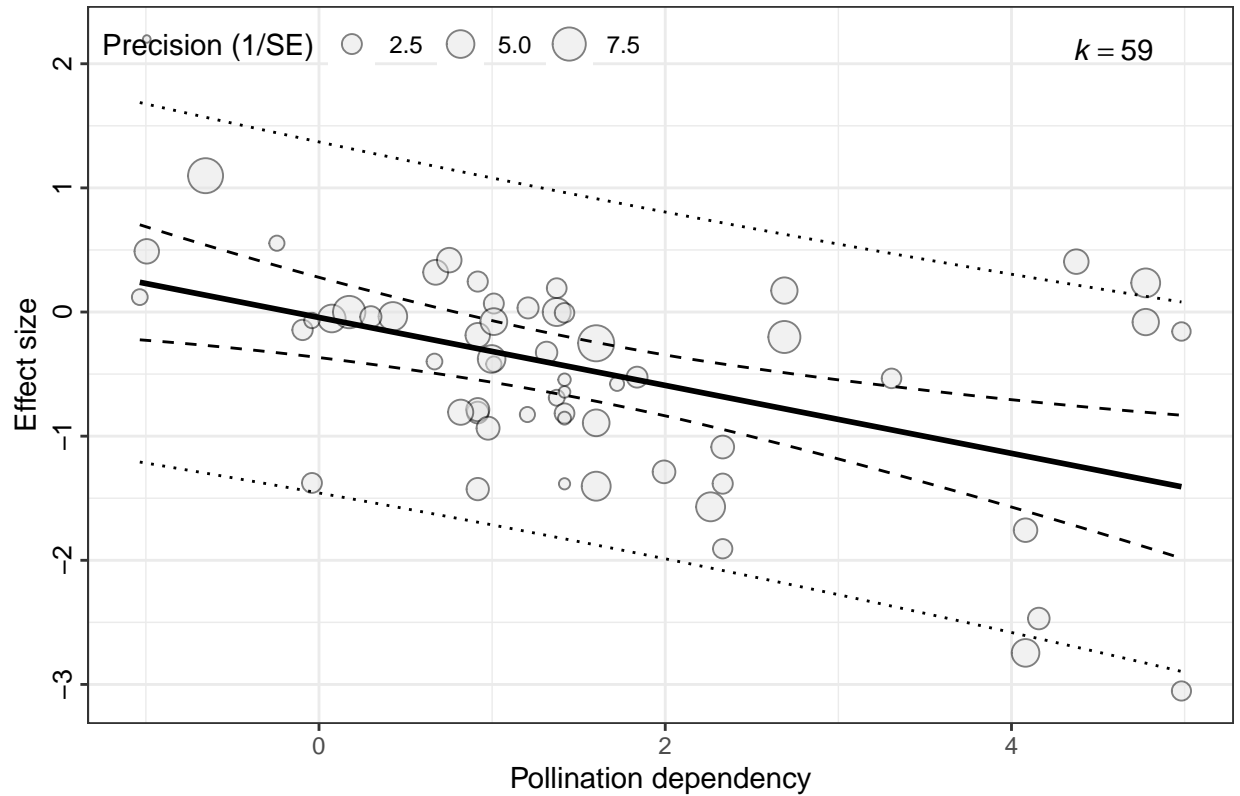
## Fruit set (day vs. night)

DEP-1.pdf

```
##
## Multivariate Meta-Analysis Model (k = 151; method: REML)
##
## Variance Components:
##
##              estim    sqrt   nlvls  fixed         factor    R
## sigma^2.1  0.1409  0.3754     76     no        study_ID   no
## sigma^2.2  0.0465  0.2155    151     no        effect_ID   no
## sigma^2.3  0.0090  0.0950     75     no           phylo  yes
## sigma^2.4  0.0000  0.0000     75     no  accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 148) = 740.0655, p-val < .0001
##
## Test of Moderators (coefficients 2:3):
## QM(df = 2) = 37.9779, p-val < .0001
##
## Model Results:
##
##                  estimate      se     zval    pval    ci.lb    ci.ub
## intrcpt            0.1052  0.1071   0.9824  0.3259  -0.1047   0.3151
## spp.poll.dep      -0.6571  0.1094  -6.0056  <.0001  -0.8715  -0.4426  ***
## I(spp.poll.dep^2)  0.1106  0.0229   4.8326  <.0001   0.0657   0.1554  ***
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Fruit set (open vs. day)

DEP-2.pdf

```
## 
## Multivariate Meta-Analysis Model (k = 153; method: REML)
## 
## Variance Components:
## 
##              estim    sqrt  nlvls  fixed           factor    R
## sigma^2.1   0.0839  0.2897     78     no         study_ID   no
## sigma^2.2   0.0917  0.3027    153     no        effect_ID   no
## sigma^2.3   0.0000  0.0000     76     no            phylo  yes
## sigma^2.4   0.1868  0.4322     76     no    accepted_name   no
## 
## Test for Residual Heterogeneity:
## QE(df = 151) = 1112.9203, p-val < .0001
## 
## Test of Moderators (coefficient 2):
## QM(df = 1) = 17.0758, p-val < .0001
## 
## Model Results:
## 
##               estimate       se     zval     pval    ci.lb     ci.ub
## intrcpt        -0.0279   0.1107  -0.2518   0.8012  -0.2448    0.1891
## spp.poll.dep   -0.2713   0.0657  -4.1323   <.0001  -0.4000   -0.1426  ***
## 
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Fruit set (open vs. night)
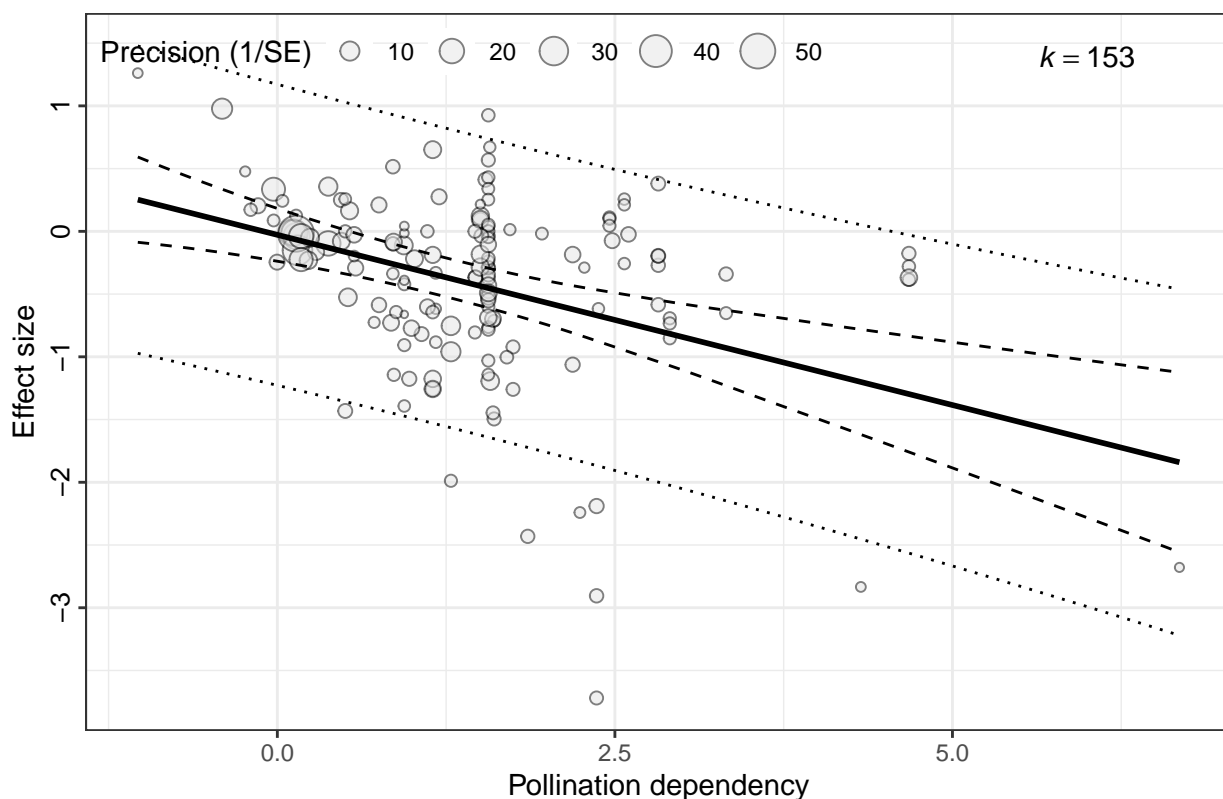
DEP-3.pdf

```
## **Seed set and species-level pollination dependency. Order is DvN, OvD, OvN**
##
## Multivariate Meta-Analysis Model (k = 59; method: REML)
##
## Variance Components:
##
##             estim    sqrt   nlvls  fixed          factor     R
## sigma^2.1  0.0000  0.0000      39     no        study_ID    no
## sigma^2.2  0.2384  0.4883      59     no        effect_ID    no
## sigma^2.3  0.1917  0.4378      36     no           phylo   yes
## sigma^2.4  1.6052  1.2670      36     no  accepted_name    no
##
## Test for Residual Heterogeneity:
## QE(df = 57) = 1081.5958, p-val < .0001
##
## Test of Moderators (coefficient 2):
## QM(df = 1) = 1.1791, p-val = 0.2775
##
## Model Results:
##
##               estimate      se     zval    pval    ci.lb   ci.ub
## intrcpt         0.1980  0.3616   0.5476  0.5840  -0.5107  0.9068
## spp.poll.dep   -0.1677  0.1544  -1.0859  0.2775  -0.4704  0.1350
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Seed set (day vs. night)
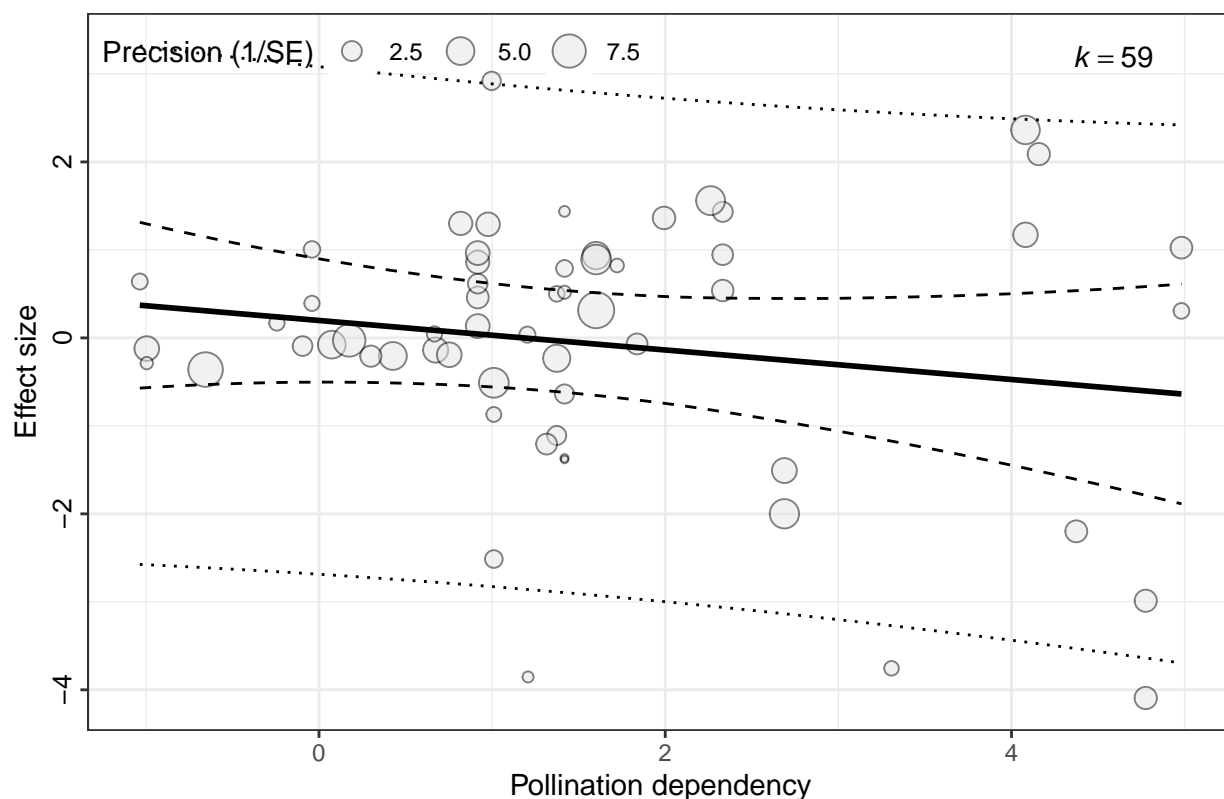
DEP-4.pdf

```
##
## Multivariate Meta-Analysis Model (k = 59; method: REML)
##
## Variance Components:
##
##            estim    sqrt  nlvls  fixed         factor    R
## sigma^2.1  0.0000  0.0000    39     no       study_ID   no
## sigma^2.2  0.2618  0.5117    59     no      effect_ID   no
## sigma^2.3  0.0000  0.0001    36     no          phylo  yes
## sigma^2.4  0.2305  0.4801    36     no  accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 57) = 488.1021, p-val < .0001
##
## Test of Moderators (coefficient 2):
## QM(df = 1) = 12.7289, p-val = 0.0004
##
## Model Results:
##
##              estimate      se     zval    pval    ci.lb    ci.ub
## intrcpt       -0.0439  0.1680  -0.2610  0.7941  -0.3732   0.2854
## spp.poll.dep  -0.2737  0.0767  -3.5678  0.0004  -0.4240  -0.1233  ***
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Seed set (open vs. day)

DEP-5.pdf

```
## 
## Multivariate Meta-Analysis Model (k = 59; method: REML)
## 
## Variance Components:
## 
##              estim    sqrt  nlvls  fixed          factor    R
## sigma^2.1  0.0000  0.0000     39     no        study_ID   no
## sigma^2.2  0.1920  0.4381     59     no        effect_ID   no
## sigma^2.3  0.0000  0.0001     36     no           phylo  yes
## sigma^2.4  0.8303  0.9112     36     no  accepted_name   no
## 
## Test for Residual Heterogeneity:
## QE(df = 57) = 495.9671, p-val < .0001
## 
## Test of Moderators (coefficient 2):
## QM(df = 1) = 18.0472, p-val < .0001
## 
## Model Results:
## 
##               estimate      se     zval    pval    ci.lb    ci.ub
## intrcpt         0.1666  0.2397   0.6951  0.4870  -0.3031   0.6363
## spp.poll.dep   -0.4759  0.1120  -4.2482  <.0001  -0.6955  -0.2563  ***
## 
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Seed set (open vs. night)
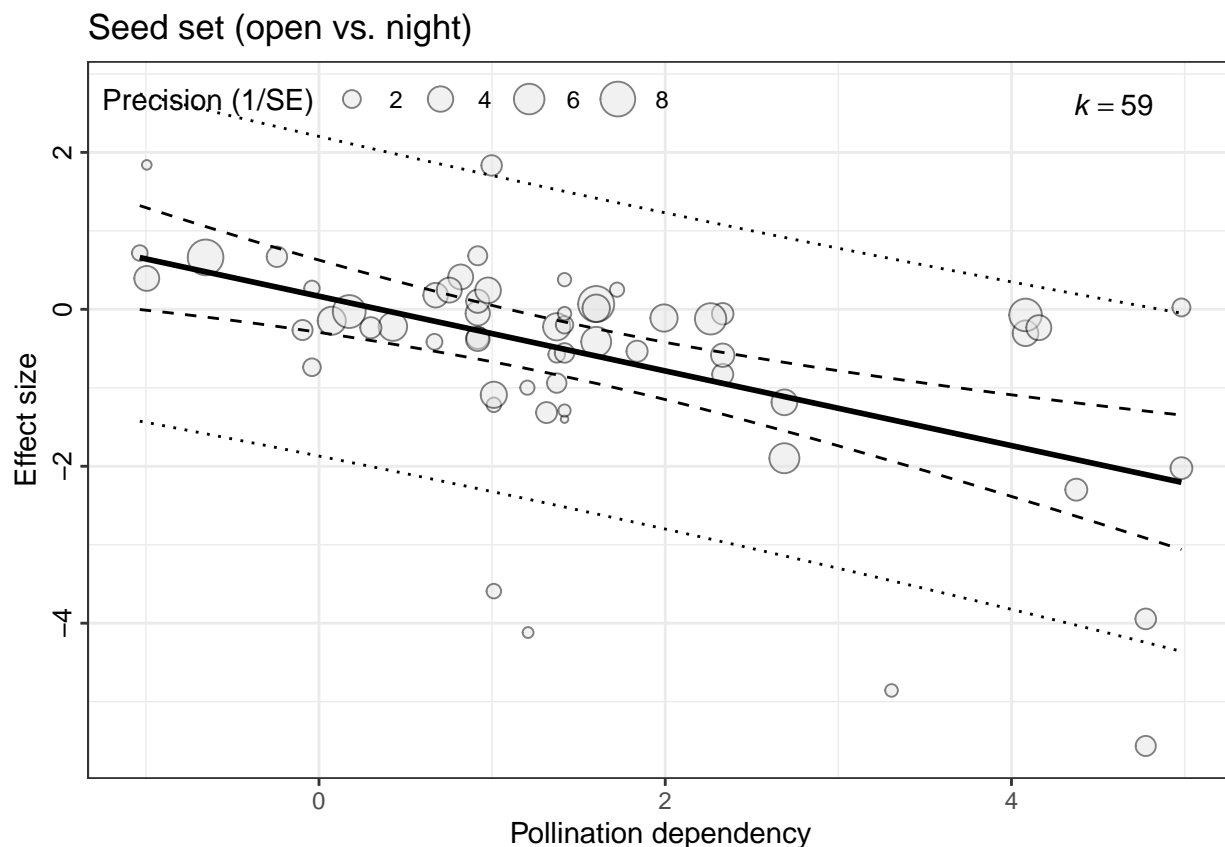
DEP-6.pdf

ES by continuous trait variables: Flower dimensions (PC1) , Plant size (PC2), and their interaction(?) (PC3)

```
## [1] 73.62

## [1] 94.8

## Phylogenetic pca
## Standard deviations:
##        PC1        PC2        PC3        PC4
## 0.15146681 0.09788505 0.09673811 0.04789623
## Loads:
##                               PC1        PC2        PC3         PC4
## flower_width_midpoint_mm  -0.7817083  0.5384239  0.2927808  0.115374273
## flower_length_midpoint_mm -0.9051256 -0.1198546 -0.1916796 -0.360057489
## style_length_midpoint_mm  -0.7384342 -0.4756881 -0.3912048  0.274580677
## plant_height_midpoint_m   -0.2042648 -0.5624059  0.8011899 -0.008387344
## lambda:
## [1] 0.8824116

##    PC1
## 51.93

##    PC2
## 21.69

## Warning: `aes_string()` was deprecated in ggplot2 3.0.0.
## i Please use tidy evaluation idioms with `aes()`.
```

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```
## i See also `vignette("ggplot2-in-packages")` for more information.
## This warning is displayed once every 8 hours.
## Call `lifecycle::last_lifecycle_warnings()` to see where this warning was
## generated.

## Warning: Using `size` aesthetic for lines was deprecated in ggplot2 3.4.0.
## i Please use `linewidth` instead.
## This warning is displayed once every 8 hours.
## Call `lifecycle::last_lifecycle_warnings()` to see where this warning was
## generated.

## Warning: The dot-dot notation (`..level..`) was deprecated in ggplot2 3.4.0.
## i Please use `after_stat(level)` instead.
## This warning is displayed once every 8 hours.
## Call `lifecycle::last_lifecycle_warnings()` to see where this warning was
## generated.
```
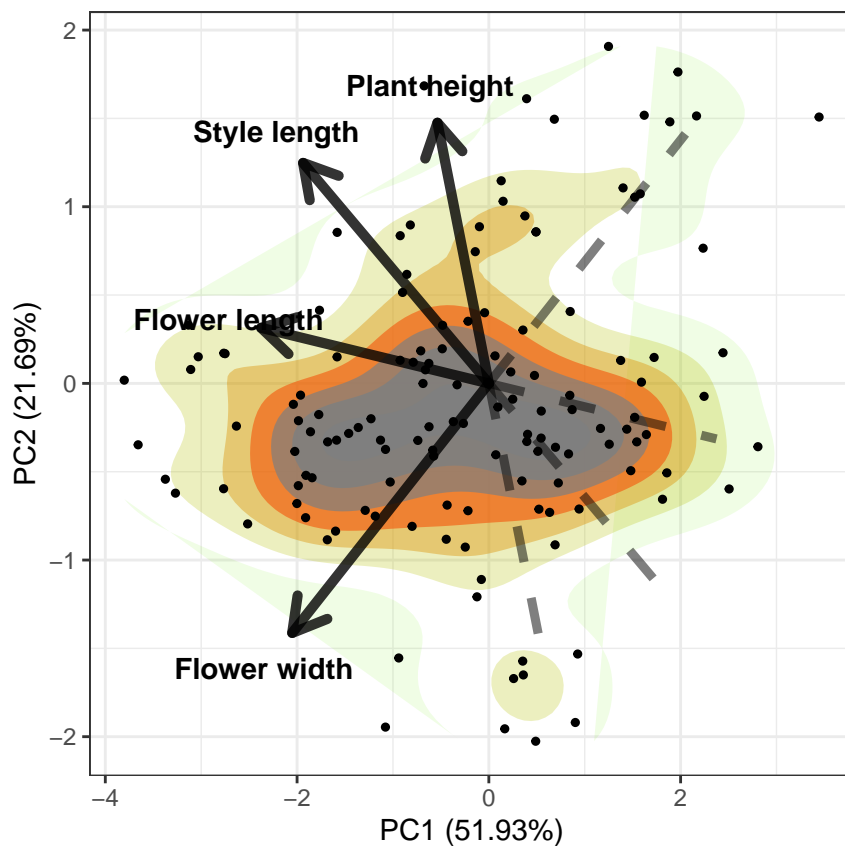


```
##    PC1
## 51.93

##    PC3
## 21.18
```
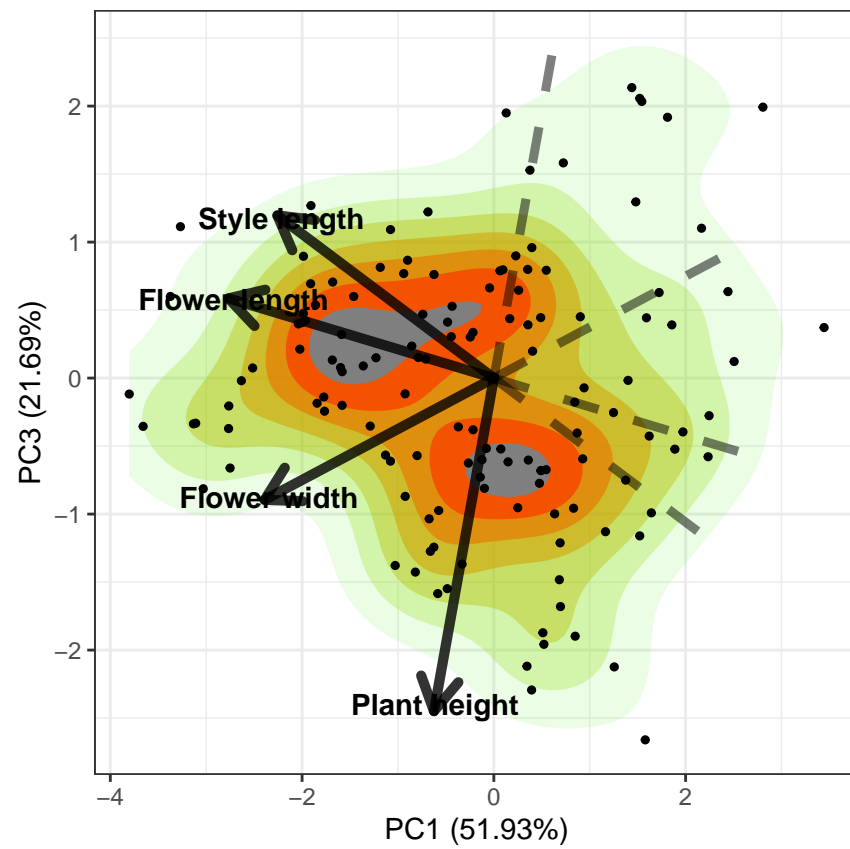
```
##    PC2
## 21.69

##    PC3
## 21.18
```
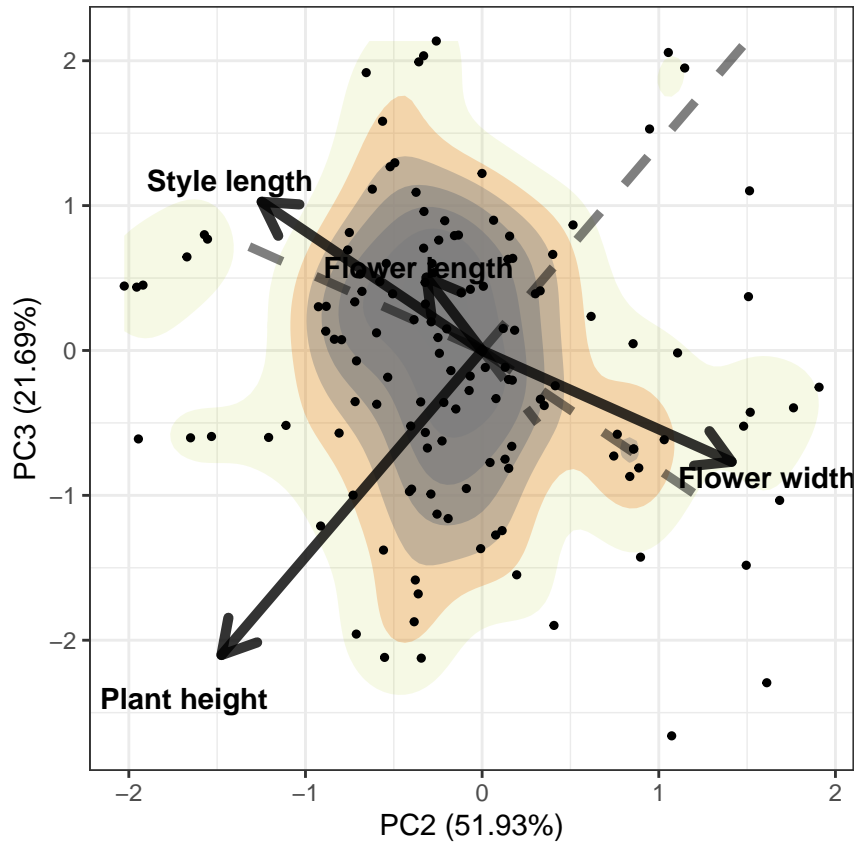
```
## **Fruit set and continuous trait variation. Order is DvN, OvD, OvN**
##
## Multivariate Meta-Analysis Model (k = 226; method: REML)
##
## Variance Components:
##
##              estim    sqrt  nlvls  fixed          factor    R
## sigma^2.1  0.5585  0.7473    107     no        study_ID   no
## sigma^2.2  0.3954  0.6288    226     no       effect_ID   no
## sigma^2.3  0.0182  0.1349    111     no           phylo  yes
## sigma^2.4  0.3539  0.5949    111     no   accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 222) = 4246.6598, p-val < .0001
##
## Test of Moderators (coefficients 2:4):
## QM(df = 3) = 2.2024, p-val = 0.5315
##
## Model Results:
##
##           estimate      se    zval    pval    ci.lb   ci.ub
## intrcpt     0.1200  0.1275  0.9406  0.3469  -0.1300  0.3699
## PC1        -0.0561  0.0760 -0.7381  0.4605  -0.2049  0.0928
## PC2         0.0655  0.1417  0.4621  0.6440  -0.2123  0.3432
## PC3         0.1599  0.1247  1.2829  0.1995  -0.0844  0.4043
##
```

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

##
## Multivariate Meta-Analysis Model (k = 191; method: REML)
##
## Variance Components:
##
##              estim    sqrt   nlvls  fixed          factor    R
## sigma^2.1  0.2528  0.5028      90     no        study_ID   no
## sigma^2.2  0.0450  0.2121     191     no        effect_ID   no
## sigma^2.3  0.0664  0.2577      92     no           phylo  yes
## sigma^2.4  0.0499  0.2234      92     no   accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 187) = 1668.9663, p-val < .0001
##
## Test of Moderators (coefficients 2:4):
## QM(df = 3) = 0.8333, p-val = 0.8415
##
## Model Results:
##
##           estimate      se     zval    pval    ci.lb    ci.ub
## intrcpt    -0.3882  0.1157  -3.3545  0.0008  -0.6150  -0.1614  ***
## PC1         0.0232  0.0521   0.4447  0.6565  -0.0790   0.1253
## PC2         0.0584  0.0882   0.6621  0.5079  -0.1145   0.2312
## PC3         0.0304  0.0839   0.3628  0.7168  -0.1340   0.1949
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

##
## Multivariate Meta-Analysis Model (k = 195; method: REML)
##
## Variance Components:
##
##              estim    sqrt   nlvls  fixed          factor    R
## sigma^2.1  0.1134  0.3367      93     no        study_ID   no
## sigma^2.2  0.0628  0.2506     195     no        effect_ID   no
## sigma^2.3  0.0000  0.0001      94     no           phylo  yes
## sigma^2.4  0.1896  0.4355      94     no   accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 191) = 1620.2365, p-val < .0001
##
## Test of Moderators (coefficients 2:4):
## QM(df = 3) = 6.6724, p-val = 0.0831
##
## Model Results:
##
##           estimate      se     zval    pval    ci.lb    ci.ub
## intrcpt    -0.3857  0.0722  -5.3427  <.0001  -0.5272  -0.2442  ***
## PC1        -0.0574  0.0465  -1.2337  0.2173  -0.1486   0.0338
## PC2         0.0057  0.0871   0.0653  0.9480  -0.1651   0.1765
## PC3         0.1614  0.0733   2.2010  0.0277   0.0177   0.3051    *
```

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```
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Fruit set (open vs. night)
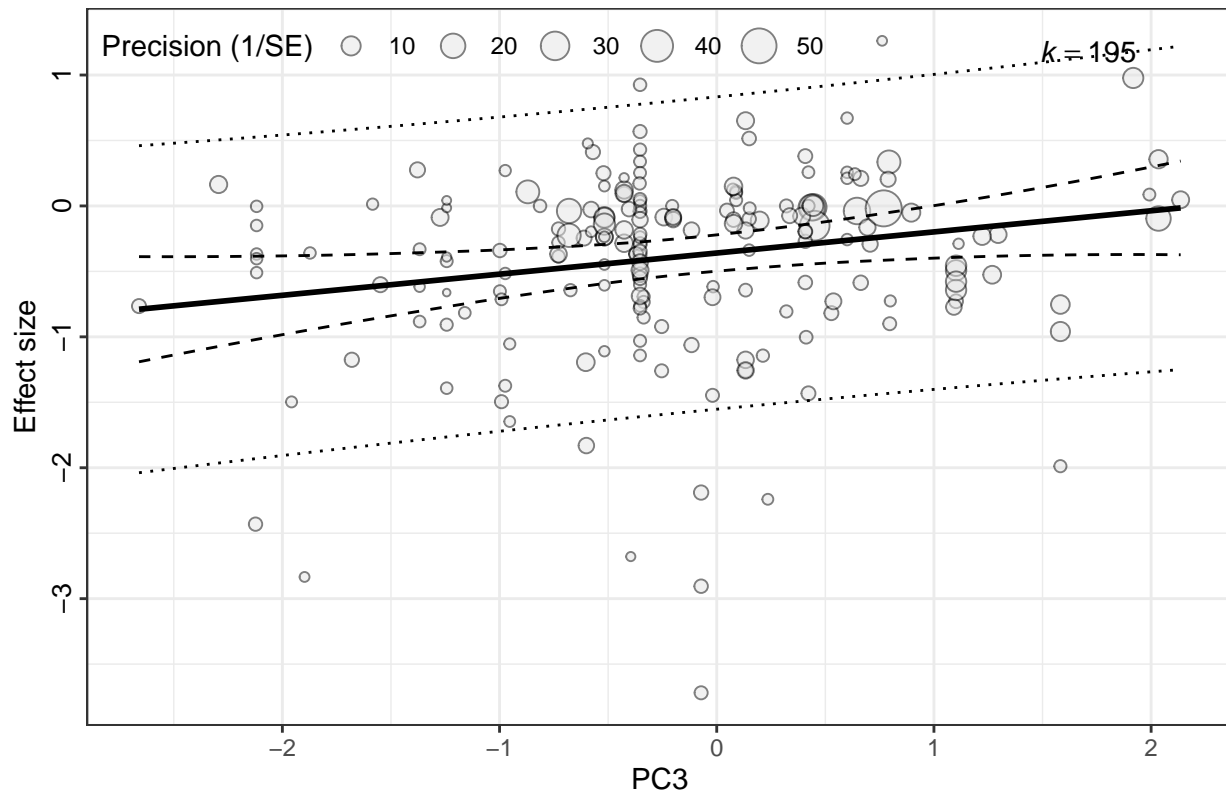

```
## **Seed set and continuous trait variation. Order is DvN, OvD, OvN**
##
## Multivariate Meta-Analysis Model (k = 135; method: REML)
##
## Variance Components:
##
##              estim    sqrt  nlvls  fixed           factor     R
## sigma^2.1  0.0000  0.0001     72     no          study_ID    no
## sigma^2.2  0.1915  0.4376    135     no         effect_ID    no
## sigma^2.3  0.1324  0.3638     70     no             phylo   yes
## sigma^2.4  1.4873  1.2195     70     no     accepted_name    no
##
## Test for Residual Heterogeneity:
## QE(df = 131) = 1476.4393, p-val < .0001
##
## Test of Moderators (coefficients 2:4):
## QM(df = 3) = 5.1275, p-val = 0.1627
##
## Model Results:
##
##           estimate      se    zval    pval    ci.lb    ci.ub
## intrcpt     0.3125  0.2231  1.4006  0.1613  -0.1248   0.7498
## PC1         0.0587  0.1208  0.4860  0.6270  -0.1780   0.2954
```

```
## PC2        -0.5045   0.2229  -2.2631   0.0236  -0.9414  -0.0676   *
## PC3        -0.1024   0.2079  -0.4924   0.6225  -0.5099   0.3052
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
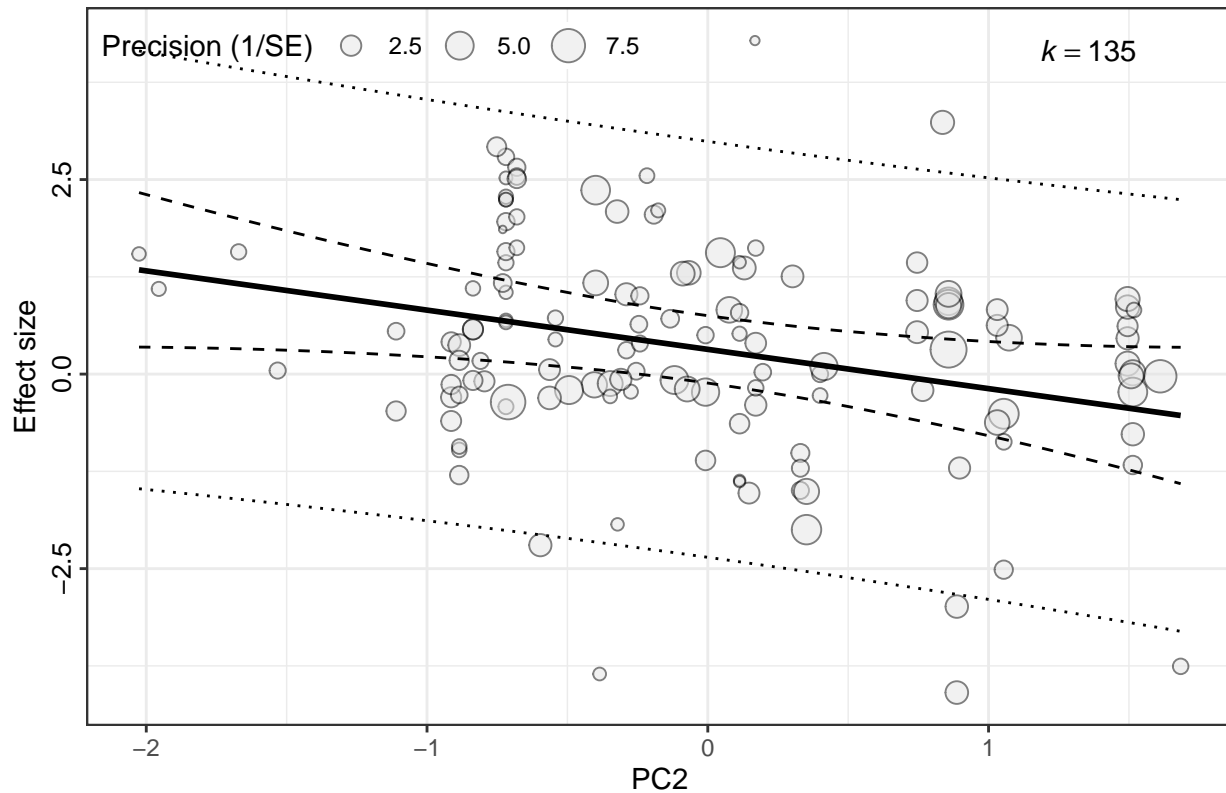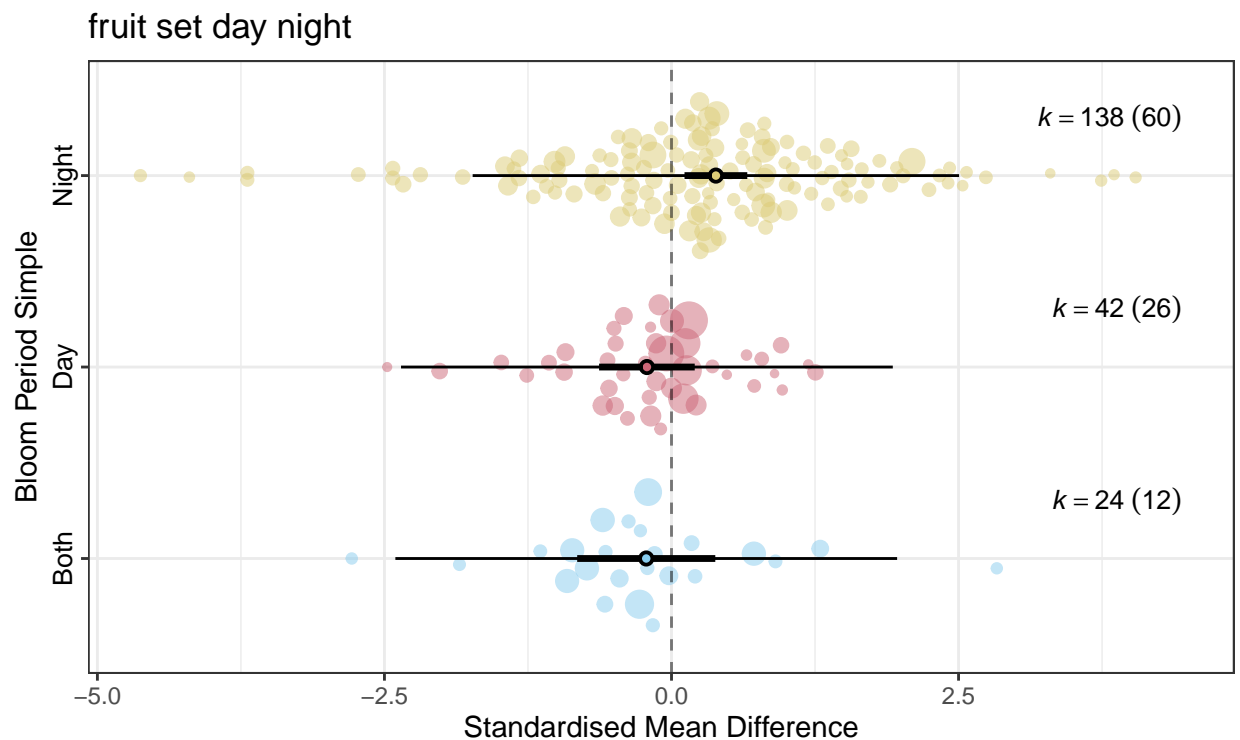
Seed set (day vs. night)


```
##
## Multivariate Meta-Analysis Model (k = 125; method: REML)
##
## Variance Components:
##
##             estim    sqrt  nlvls  fixed          factor    R
## sigma^2.1  0.0000  0.0000     64     no        study_ID   no
## sigma^2.2  0.1482  0.3850    125     no        effect_ID   no
## sigma^2.3  0.0000  0.0001     61     no           phylo  yes
## sigma^2.4  0.5193  0.7206     61     no  accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 121) = 896.2025, p-val < .0001
##
## Test of Moderators (coefficients 2:4):
## QM(df = 3) = 3.8717, p-val = 0.2757
##
## Model Results:
##
##          estimate      se     zval     pval    ci.lb    ci.ub
## intrcpt   -0.4914  0.1186  -4.1451   <.0001  -0.7238  -0.2591  ***
## PC1       -0.0655  0.0775  -0.8454   0.3979  -0.2173   0.0863
```

```
## PC2            0.1962  0.1505   1.3034  0.1924  -0.0988     0.4912
## PC3            0.2157  0.1292   1.6694  0.0950  -0.0375     0.4690    .
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

##
## Multivariate Meta-Analysis Model (k = 131; method: REML)
##
## Variance Components:
##
##               estim    sqrt  nlvls  fixed          factor    R
## sigma^2.1  0.0356  0.1886      68     no         study_ID   no
## sigma^2.2  0.1189  0.3449     131     no         effect_ID   no
## sigma^2.3  0.0568  0.2384      66     no            phylo  yes
## sigma^2.4  0.7001  0.8367      66     no   accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 127) = 835.5473, p-val < .0001
##
## Test of Moderators (coefficients 2:4):
## QM(df = 3) = 6.9129, p-val = 0.0747
##
## Model Results:
##
##           estimate      se     zval    pval    ci.lb    ci.ub
## intrcpt   -0.2645  0.1619  -1.6338  0.1023  -0.5819    0.0528
## PC1        0.0547  0.0924   0.5920  0.5538  -0.1264    0.2358
## PC2       -0.4270  0.1686  -2.5328  0.0113  -0.7575   -0.0966  *
## PC3       -0.0071  0.1505  -0.0469  0.9626  -0.3020    0.2879
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Seed set (open vs. night)
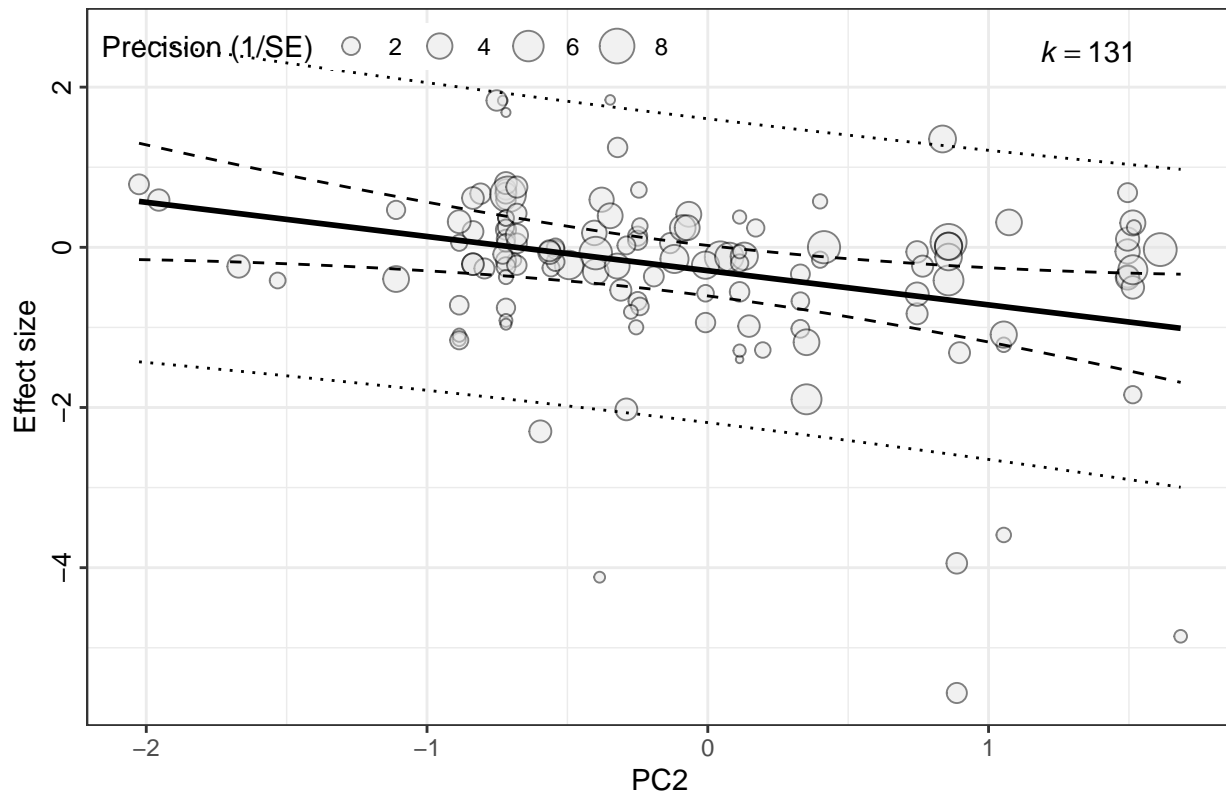
ES by categorical traits

```
## Warning: 22 rows with NAs omitted from model fitting.
## Warning: Redundant predictors dropped from the model.
## Warning: 12 rows with NAs omitted from model fitting.
## Warning: Redundant predictors dropped from the model.
## Warning: 14 rows with NAs omitted from model fitting.
## Warning: Redundant predictors dropped from the model.

## Warning: Redundant predictors dropped from the model.
## Warning: 8 rows with NAs omitted from model fitting.
## Warning: Redundant predictors dropped from the model.
## Warning: 14 rows with NAs omitted from model fitting.
## Warning: Redundant predictors dropped from the model.

## Warning: Redundant predictors dropped from the model.
## Warning: 8 rows with NAs omitted from model fitting.
## Warning: Redundant predictors dropped from the model.
##
## Multivariate Meta-Analysis Model (k = 204; method: REML)
```
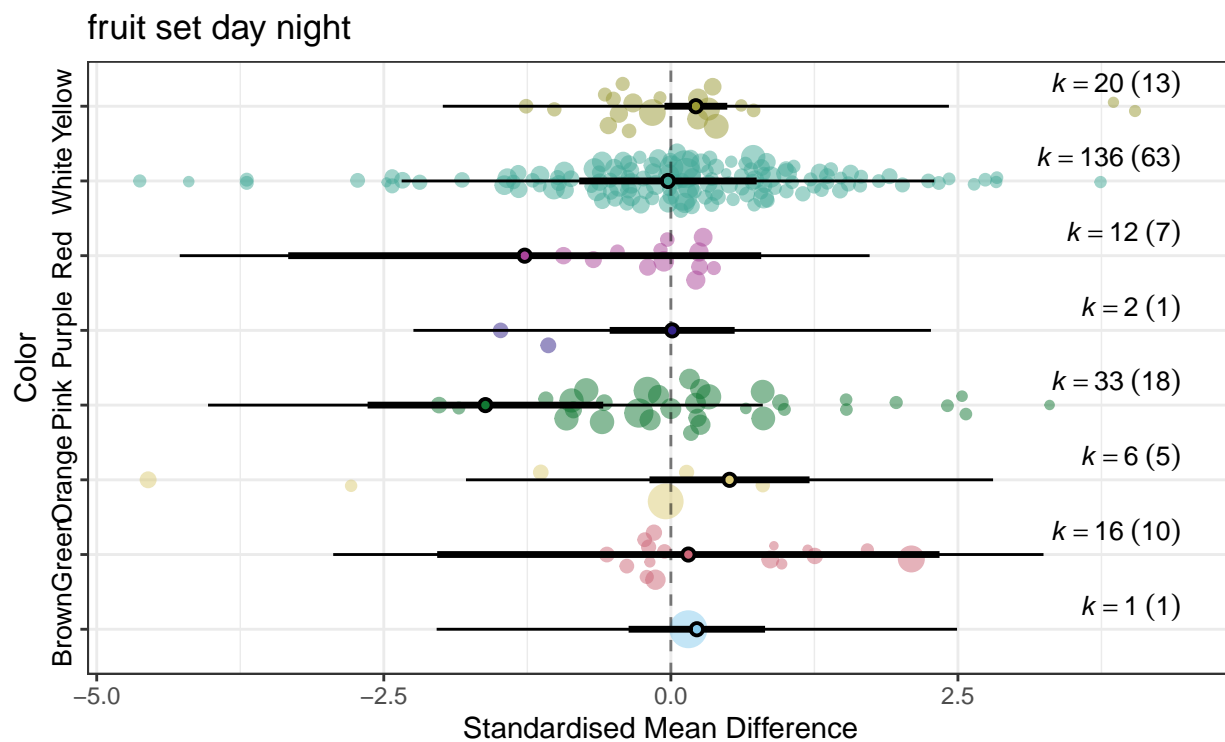
```
## 
## Variance Components:
## 
##             estim    sqrt   nlvls  fixed        factor     R
## sigma^2.1  0.4907  0.7005      94     no      study_ID    no
## sigma^2.2  0.3950  0.6285     204     no     effect_ID    no
## sigma^2.3  0.0000  0.0001      96     no        phylo   yes
## sigma^2.4  0.2628  0.5126      96     no  accepted_name   no
## 
## Test for Residual Heterogeneity:
## QE(df = 201) = 3654.6657, p-val < .0001
## 
## Test of Moderators (coefficients 2:3):
## QM(df = 2) = 7.6053, p-val = 0.0223
## 
## Model Results:
## 
##                          estimate      se     zval    pval    ci.lb   ci.ub
## intrcpt                   -0.2199  0.3068  -0.7168  0.4735  -0.8213  0.3815
## bloom_period_simpleday     0.0059  0.3732   0.0157  0.9874  -0.7257  0.7374
## bloom_period_simplenight   0.6065  0.3370   1.7995  0.0719  -0.0541  1.2671   .
## 
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```


fruit set day night

traits-1.pdf

```
## 
## Multivariate Meta-Analysis Model (k = 226; method: REML)
## 
```

```
## Variance Components:
##
##            estim    sqrt   nlvls  fixed        factor     R
## sigma^2.1  0.5507  0.7421   107     no       study_ID    no
## sigma^2.2  0.4035  0.6352   226     no       effect_ID    no
## sigma^2.3  0.0302  0.1736   111     no          phylo   yes
## sigma^2.4  0.3389  0.5821   111     no  accepted_name    no
##
## Test for Residual Heterogeneity:
## QE(df = 223) = 4418.1912, p-val < .0001
##
## Test of Moderators (coefficients 2:3):
## QM(df = 2) = 0.5863, p-val = 0.7459
##
## Model Results:
##
##                                estimate      se     zval     pval    ci.lb
## intrcpt                          0.1057  0.4555   0.2321   0.8165  -0.7870
## breeding_systemhermaphrodite    -0.0189  0.4652  -0.0407   0.9675  -0.9307
## breeding_systemmonoecious        0.3619  0.6597   0.5486   0.5833  -0.9310
##                                  ci.ub
## intrcpt                         0.9985
## breeding_systemhermaphrodite    0.8928
## breeding_systemmonoecious       1.6548
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
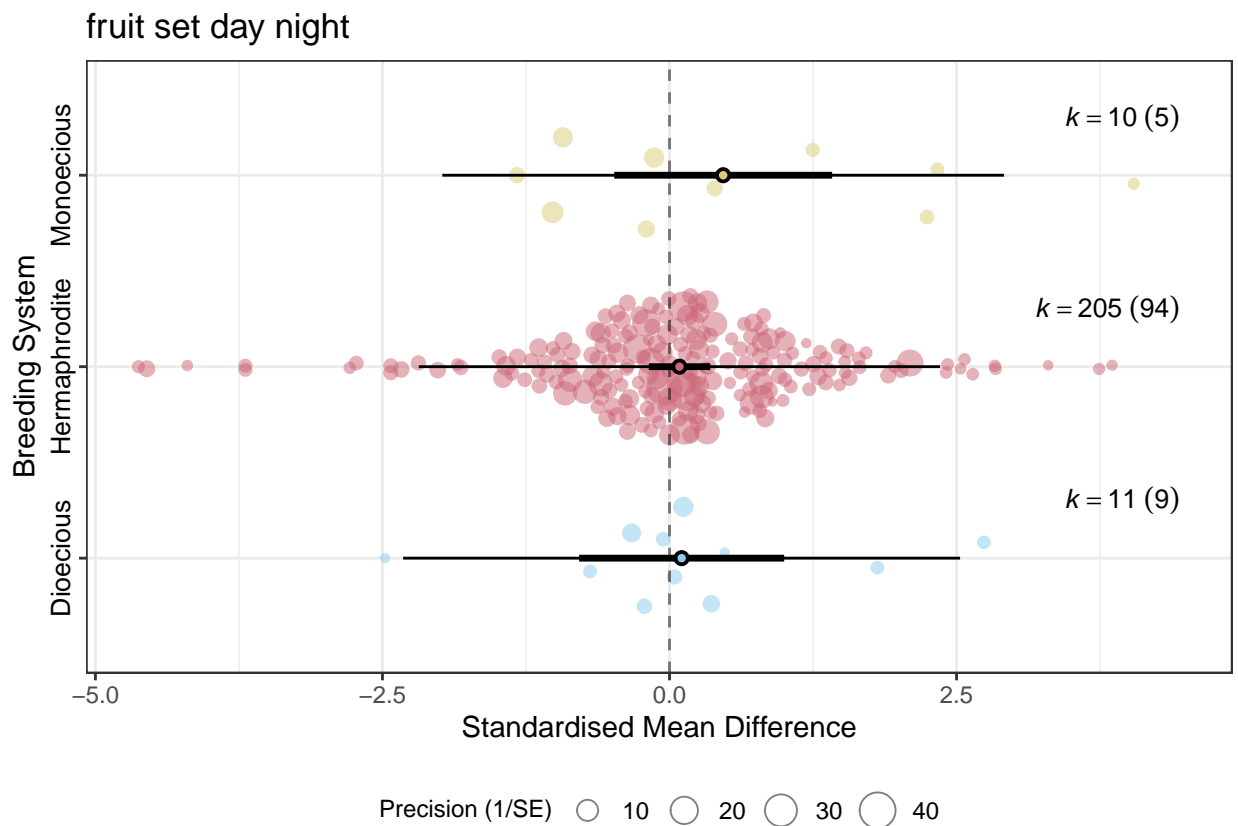
fruit set day night

```
##
## Multivariate Meta-Analysis Model (k = 226; method: REML)
##
## Variance Components:
##
##             estim    sqrt   nlvls  fixed         factor    R
## sigma^2.1  0.5550  0.7450    107     no        study_ID   no
## sigma^2.2  0.3874  0.6225    226     no        effect_ID   no
## sigma^2.3  0.0000  0.0002    111     no          phylo  yes
## sigma^2.4  0.3024  0.5499    111     no  accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 218) = 3568.0822, p-val < .0001
##
## Test of Moderators (coefficients 2:8):
## QM(df = 7) = 15.0707, p-val = 0.0351
##
## Model Results:
##
##              estimate      se     zval    pval    ci.lb    ci.ub
## intrcpt        0.2262  0.3031   0.7463  0.4555  -0.3679   0.8203
## colorbrown    -0.0739  1.1564  -0.0639  0.9491  -2.3404   2.1927
## colorgreen     0.2847  0.4526   0.6291  0.5293  -0.6023   1.1717
## colororange   -1.8412  0.5975  -3.0815  0.0021  -3.0123  -0.6701  **
## colorpink     -0.2147  0.4100  -0.5238  0.6005  -1.0183   0.5889
## colorpurple   -1.4991  1.0936  -1.3708  0.1704  -3.6426   0.6444
## colorred      -0.2517  0.4963  -0.5072  0.6120  -1.2244   0.7209
## colorwhite    -0.0084  0.3264  -0.0258  0.9795  -0.6482   0.6314
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
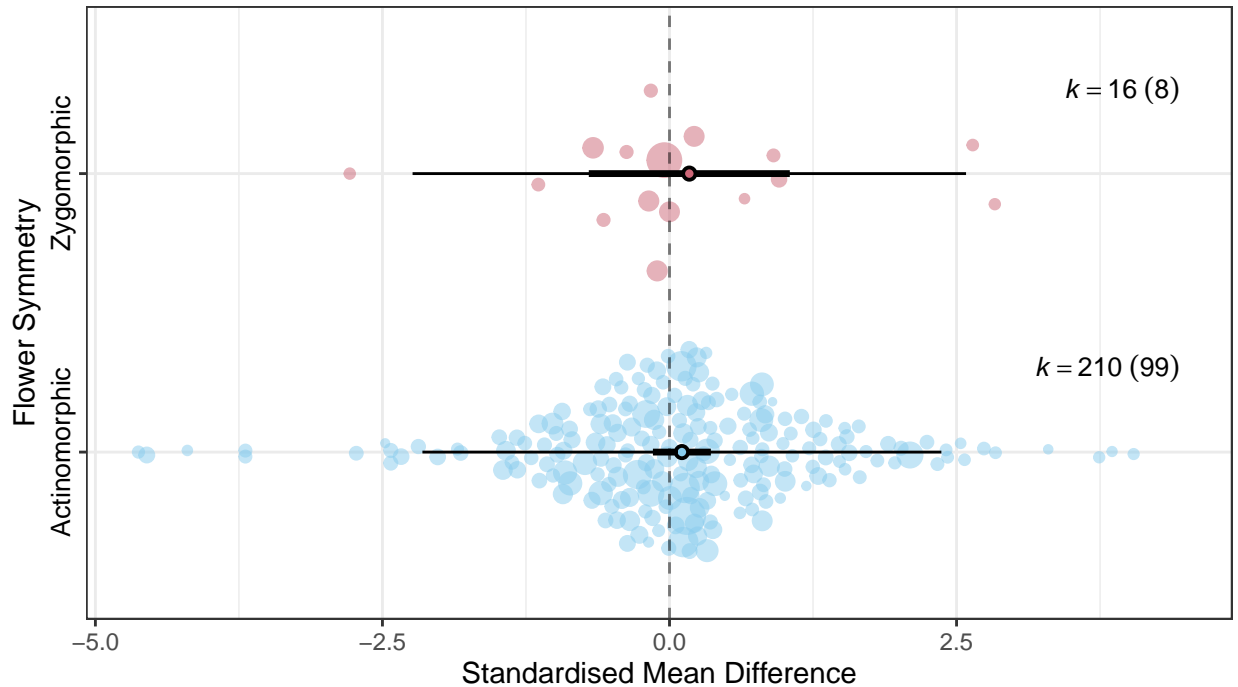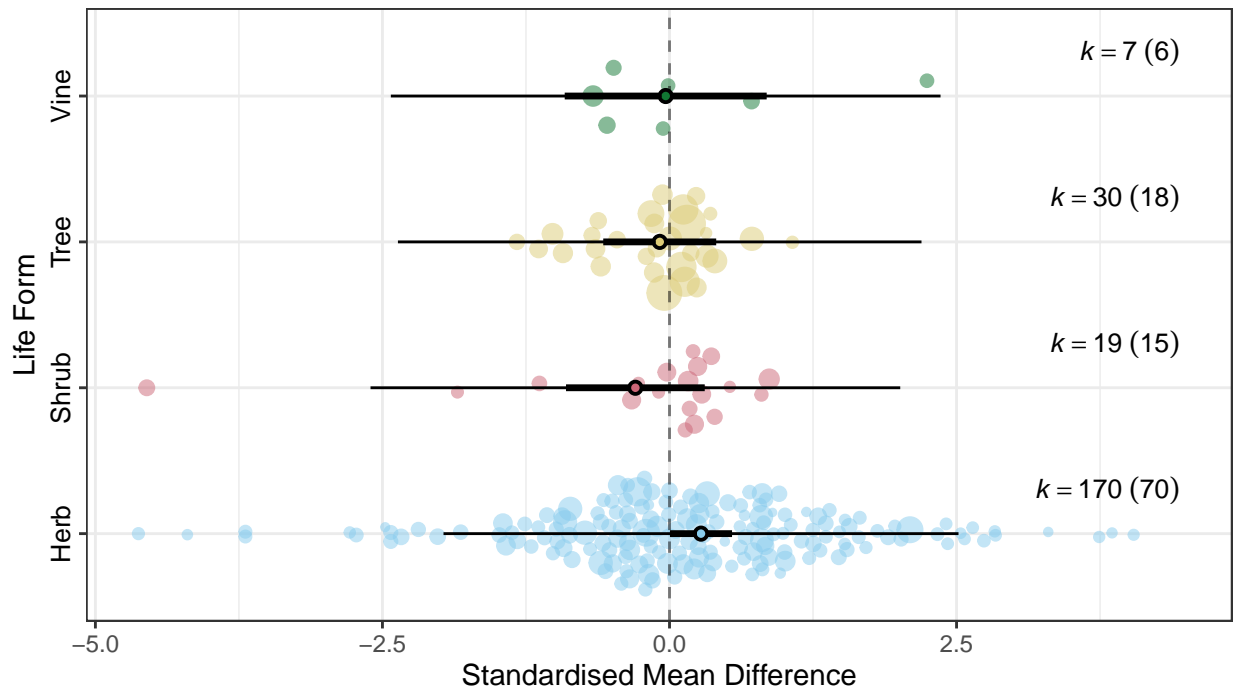
fruit set day night

traits-3.pdf

```
##
## Multivariate Meta-Analysis Model (k = 226; method: REML)
##
## Variance Components:
##
##             estim    sqrt   nlvls   fixed        factor     R
## sigma^2.1  0.5832  0.7636     107      no      study_ID    no
## sigma^2.2  0.4017  0.6338     226      no     effect_ID    no
## sigma^2.3  0.0091  0.0952     111      no         phylo   yes
## sigma^2.4  0.3424  0.5851     111      no  accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 220) = 4146.4740, p-val < .0001
##
## Test of Moderators (coefficients 2:6):
## QM(df = 5) = 2.4092, p-val = 0.7901
##
## Model Results:
##
##                            estimate      se     zval    pval    ci.lb   ci.ub
## intrcpt                     -0.0723  0.3907  -0.1850  0.8532  -0.8380  0.6935
## flower_shapecampanulate      0.2315  0.6005   0.3856  0.6998  -0.9454  1.4084
## flower_shapecapitulum        0.5660  1.4742   0.3839  0.7010  -2.3234  3.4555
## flower_shapeopen            -0.0670  0.4856  -0.1380  0.8903  -1.0187  0.8847
## flower_shapepapilionaceous   0.9778  0.7717   1.2671  0.2051  -0.5346  2.4902
## flower_shapetube             0.2165  0.4143   0.5227  0.6012  -0.5954  1.0285
##
## intrcpt
```

```
## flower_shapecampanulate
## flower_shapecapitulum
## flower_shapeopen
## flower_shapepapilionaceous
## flower_shapetube
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
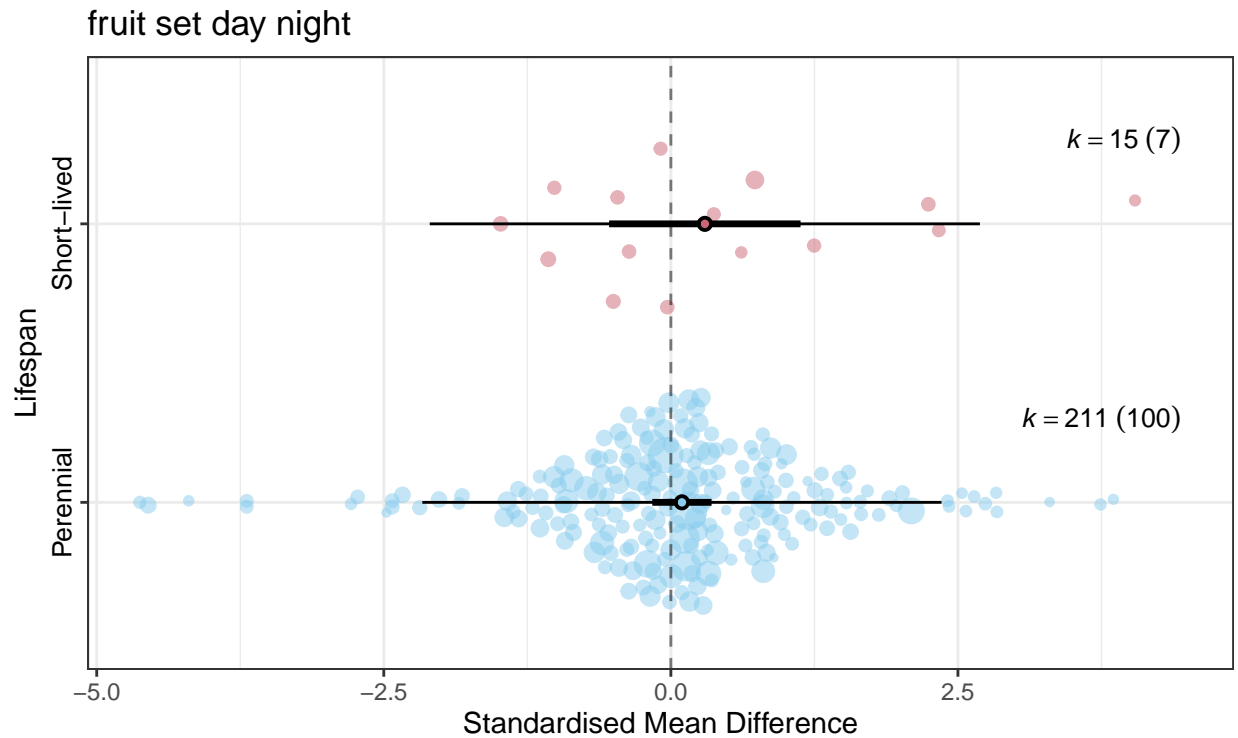

fruit set day night
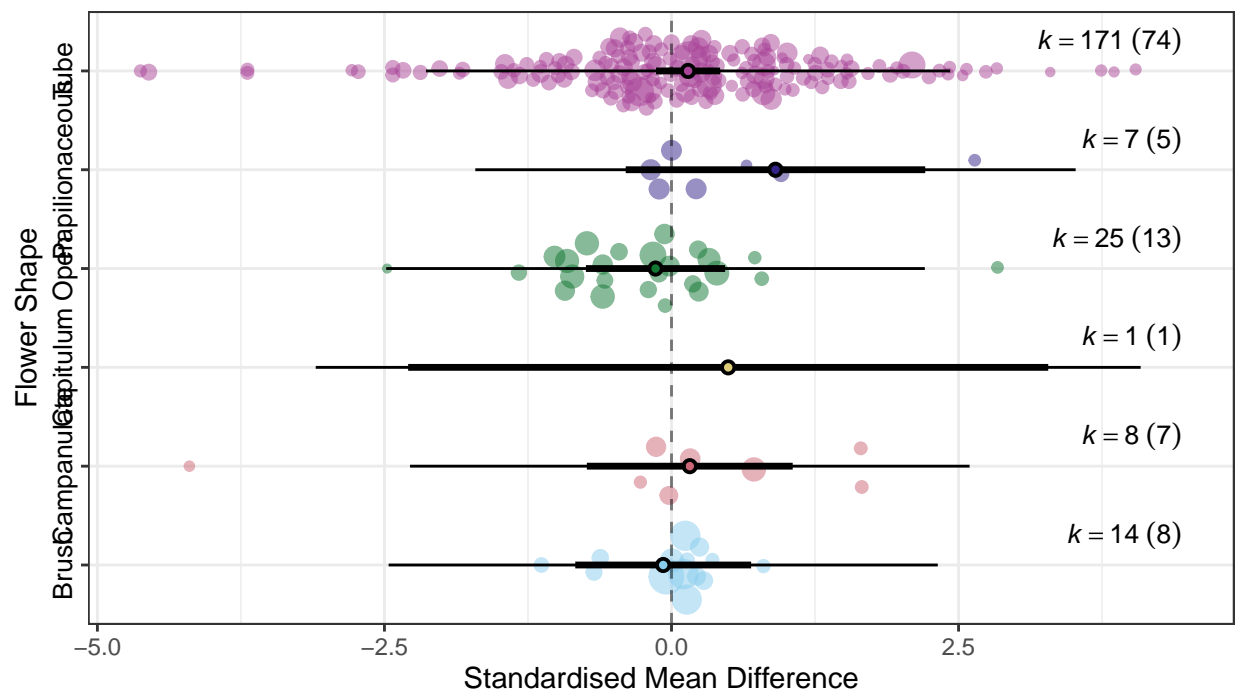
traits-4.pdf

```
##
## Multivariate Meta-Analysis Model (k = 226; method: REML)
##
## Variance Components:
##
##             estim    sqrt  nlvls  fixed         factor    R
## sigma^2.1  0.5766  0.7593    107     no       study_ID   no
## sigma^2.2  0.4055  0.6368    226     no      effect_ID   no
## sigma^2.3  0.0214  0.1462    111     no          phylo  yes
## sigma^2.4  0.3093  0.5561    111     no  accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 224) = 4453.1316, p-val < .0001
##
## Test of Moderators (coefficient 2):
## QM(df = 1) = 0.0196, p-val = 0.8886
##
## Model Results:
##
```

```
##                                estimate      se    zval    pval    ci.lb   ci.ub
## intrcpt                          0.1079  0.1287  0.8385  0.4017  -0.1443  0.3601
## flower_symmetryzygomorphic       0.0647  0.4614  0.1401  0.8886  -0.8397  0.9690
##
## intrcpt
## flower_symmetryzygomorphic
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
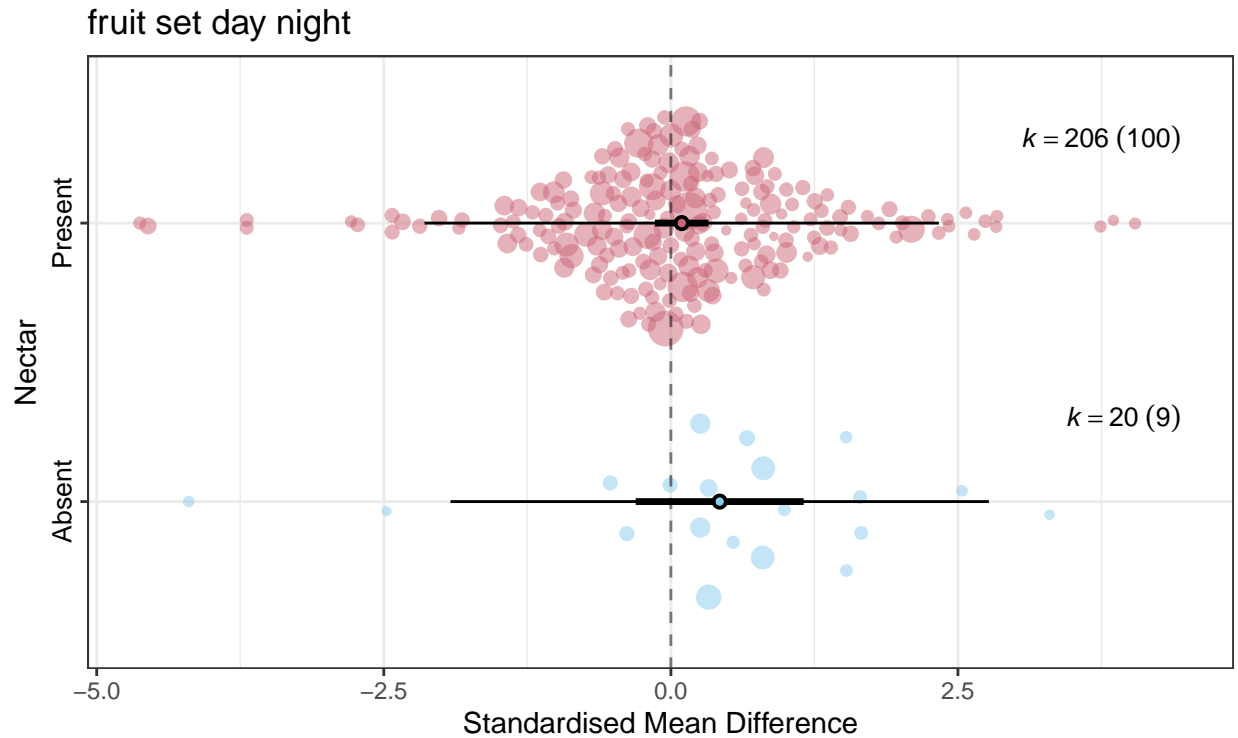

fruit set day night

traits-5.pdf

```
##
## Multivariate Meta-Analysis Model (k = 226; method: REML)
##
## Variance Components:
##
##              estim    sqrt   nlvls  fixed          factor    R
## sigma^2.1   0.5882  0.7669    107     no         study_ID   no
## sigma^2.2   0.4052  0.6365    226     no         effect_ID   no
## sigma^2.3   0.0000  0.0001    111     no            phylo  yes
## sigma^2.4   0.2968  0.5448    111     no    accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 222) = 4458.3032, p-val < .0001
##
## Test of Moderators (coefficients 2:4):
## QM(df = 3) = 3.8774, p-val = 0.2750
##
## Model Results:
```

```
##
##                    estimate      se      zval     pval    ci.lb   ci.ub
## intrcpt              0.2744  0.1379    1.9893   0.0467   0.0040  0.5447  *
## life_formshrub      -0.5715  0.3377   -1.6925   0.0906  -1.2334  0.0903  .
## life_formtree       -0.3596  0.2862   -1.2564   0.2090  -0.9205  0.2013
## life_formvine       -0.3075  0.4646   -0.6620   0.5080  -1.2180  0.6030
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
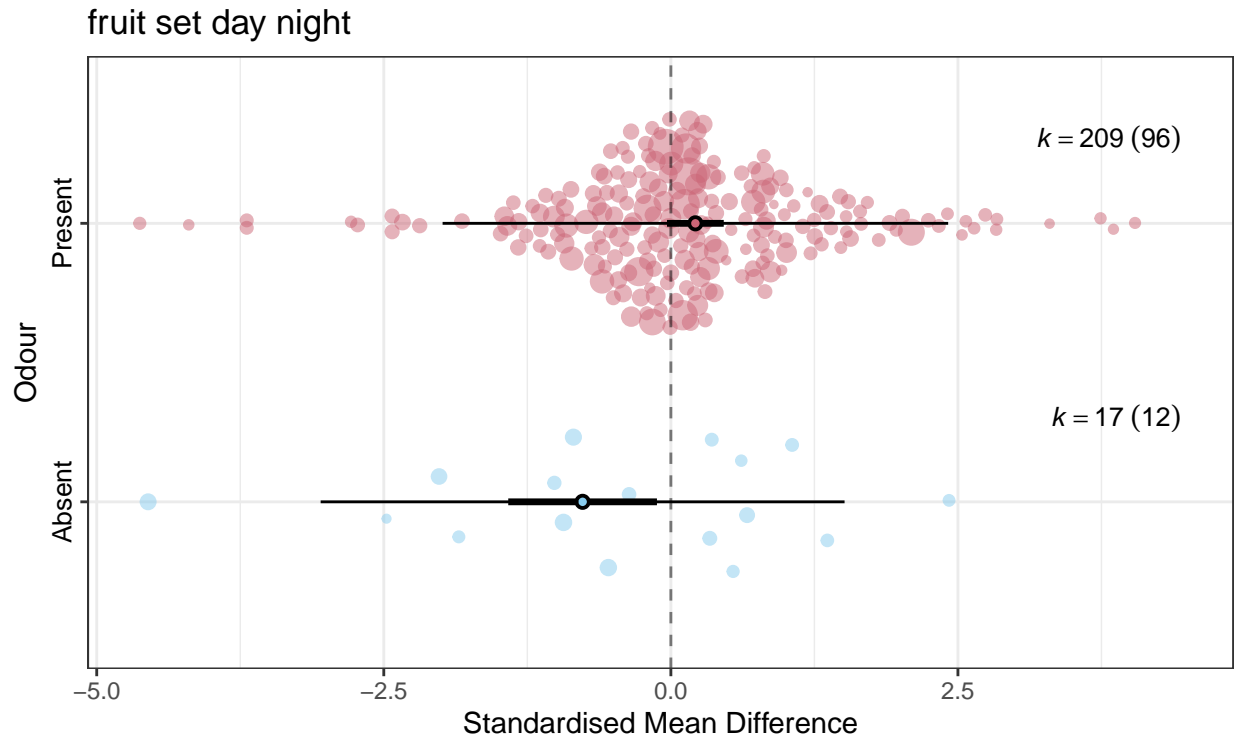
fruit set day night

traits-6.pdf

```
##
## Multivariate Meta-Analysis Model (k = 226; method: REML)
##
## Variance Components:
##
##             estim    sqrt   nlvls  fixed        factor     R
## sigma^2.1  0.5606  0.7488     107     no      study_ID    no
## sigma^2.2  0.4044  0.6360     226     no     effect_ID    no
## sigma^2.3  0.0265  0.1627     111     no         phylo   yes
## sigma^2.4  0.3215  0.5670     111     no accepted_name    no
##
## Test for Residual Heterogeneity:
## QE(df = 224) = 4469.1626, p-val < .0001
##
## Test of Moderators (coefficient 2):
## QM(df = 1) = 0.2068, p-val = 0.6493
##
## Model Results:
```

```
##
##                      estimate      se    zval    pval    ci.lb   ci.ub
## intrcpt               0.0962  0.1316  0.7314  0.4645  -0.1616  0.3541
## lifespanshort-lived   0.1997  0.4391  0.4548  0.6493  -0.6609  1.0602
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

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traits-7.pdf

```
##
## Multivariate Meta-Analysis Model (k = 226; method: REML)
##
## Variance Components:
##
##            estim    sqrt  nlvls  fixed          factor    R
## sigma^2.1  0.6101  0.7811    107     no        study_ID   no
## sigma^2.2  0.4093  0.6398    226     no        effect_ID  no
## sigma^2.3  0.0092  0.0957    111     no           phylo  yes
## sigma^2.4  0.2631  0.5129    111     no  accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 224) = 4328.6464, p-val < .0001
##
## Test of Moderators (coefficient 2):
## QM(df = 1) = 0.7595, p-val = 0.3835
##
## Model Results:
##
##                 estimate      se     zval     pval    ci.lb   ci.ub
```

```
## intrcpt          0.4250   0.3731    1.1393   0.2546   -0.3062   1.1562
## nectarpresent   -0.3307   0.3795   -0.8715   0.3835   -1.0744   0.4130
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

fruit set day night

traits-8.pdf

```
##
## Multivariate Meta-Analysis Model (k = 226; method: REML)
##
## Variance Components:
##
##            estim    sqrt   nlvls   fixed          factor     R
## sigma^2.1  0.5757  0.7587    107      no        study_ID    no
## sigma^2.2  0.3904  0.6248    226      no       effect_ID    no
## sigma^2.3  0.0199  0.1409    111      no           phylo   yes
## sigma^2.4  0.2598  0.5097    111      no   accepted_name    no
##
## Test for Residual Heterogeneity:
## QE(df = 224) = 4352.8716, p-val < .0001
##
## Test of Moderators (coefficient 2):
## QM(df = 1) = 8.2198, p-val = 0.0041
##
## Model Results:
##
##              estimate      se     zval    pval    ci.lb    ci.ub
## intrcpt       -0.7686  0.3304  -2.3263  0.0200  -1.4162  -0.1210    *
## odourpresent   0.9823  0.3426   2.8670  0.0041   0.3108   1.6538   **
```

```
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

fruit set day night


```
##
## Multivariate Meta-Analysis Model (k = 123; method: REML)
##
## Variance Components:
##
##             estim    sqrt  nlvls  fixed          factor    R
## sigma^2.1  0.0000  0.0000     63     no        study_ID   no
## sigma^2.2  0.1667  0.4083    123     no       effect_ID   no
## sigma^2.3  0.0000  0.0002     61     no           phylo  yes
## sigma^2.4  1.5994  1.2647     61     no   accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 120) = 1331.5610, p-val < .0001
##
## Test of Moderators (coefficients 2:3):
## QM(df = 2) = 4.4458, p-val = 0.1083
##
## Model Results:
##
##                            estimate       se     zval    pval    ci.lb   ci.ub
## intrcpt                      0.2967   0.4273   0.6942  0.4875  -0.5409  1.1342
## bloom_period_simpleday      -0.6147   0.5731  -1.0726  0.2835  -1.7378  0.5085
## bloom_period_simplenight     0.3166   0.4828   0.6558  0.5119  -0.6296  1.2629
##
```
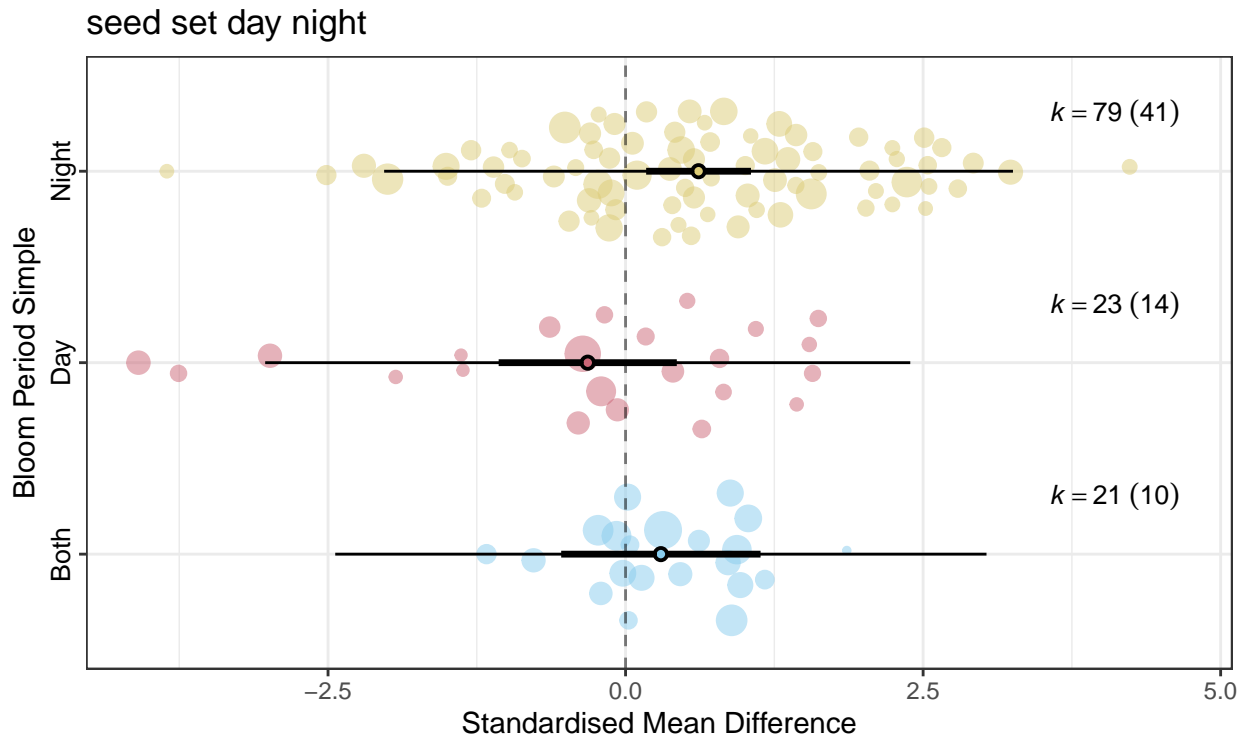
traits-9.pdf

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```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
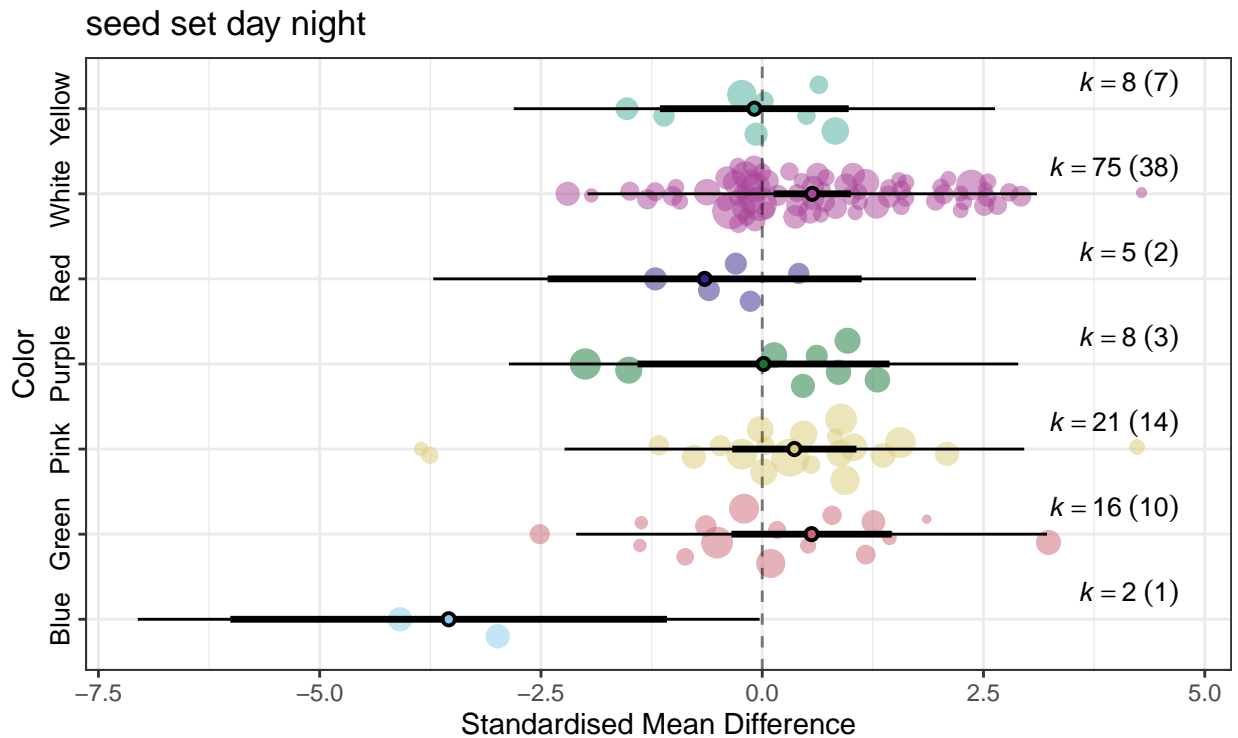
seed set day night

traits-10.pdf

```
##
## Multivariate Meta-Analysis Model (k = 135; method: REML)
##
## Variance Components:
##
##             estim    sqrt   nlvls  fixed         factor     R
## sigma^2.1  0.0000  0.0000     72    no         study_ID    no
## sigma^2.2  0.1891  0.4349    135    no        effect_ID    no
## sigma^2.3  0.0000  0.0002     70    no            phylo   yes
## sigma^2.4  1.7067  1.3064     70    no    accepted_name    no
##
## Test for Residual Heterogeneity:
## QE(df = 132) = 1555.7539, p-val < .0001
##
## Test of Moderators (coefficients 2:3):
## QM(df = 2) = 0.1045, p-val = 0.9491
##
## Model Results:
##
##                               estimate      se     zval    pval     ci.lb
## intrcpt                         0.3010  0.6250   0.4816  0.6301   -0.9240
## breeding_systemhermaphrodite    0.0588  0.6508   0.0904  0.9280   -1.2168
## breeding_systemmonoecious      -0.2038  1.0255  -0.1988  0.8425   -2.2138
##                                  ci.ub
## intrcpt                         1.5260
```

```
## breeding_systemhermaphrodite   1.3344
## breeding_systemmonoecious      1.8061
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
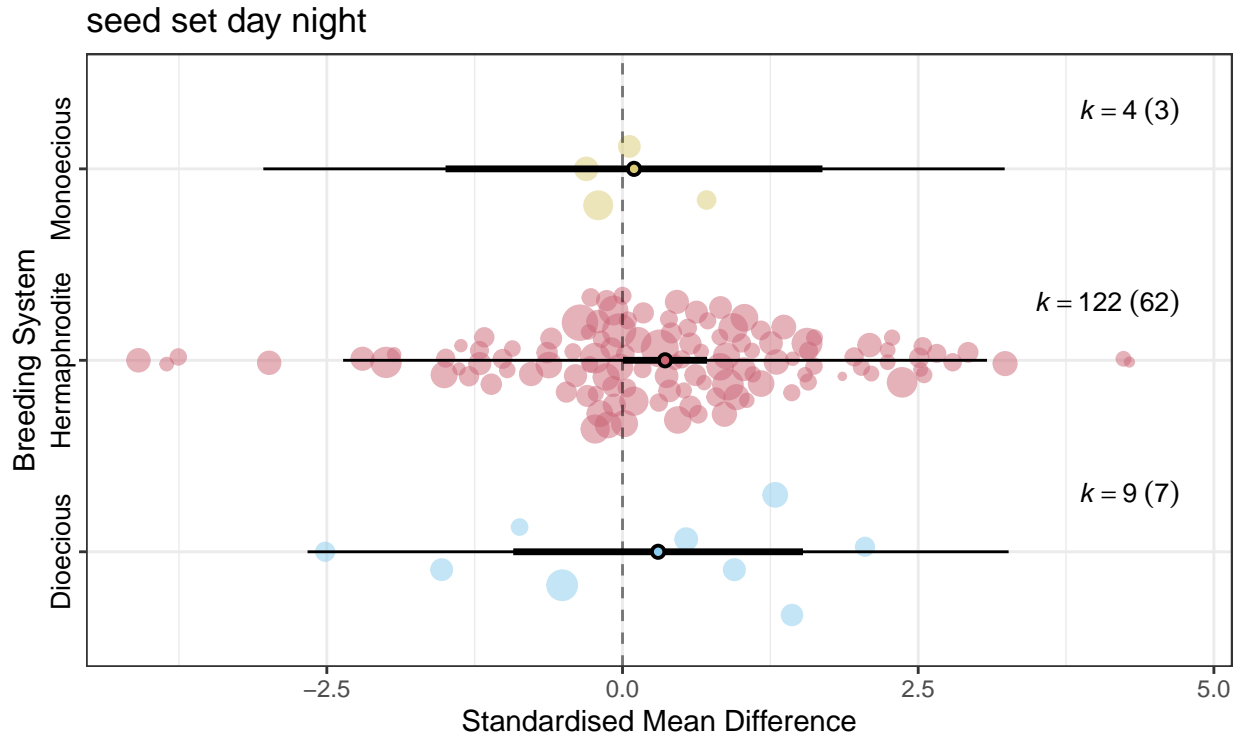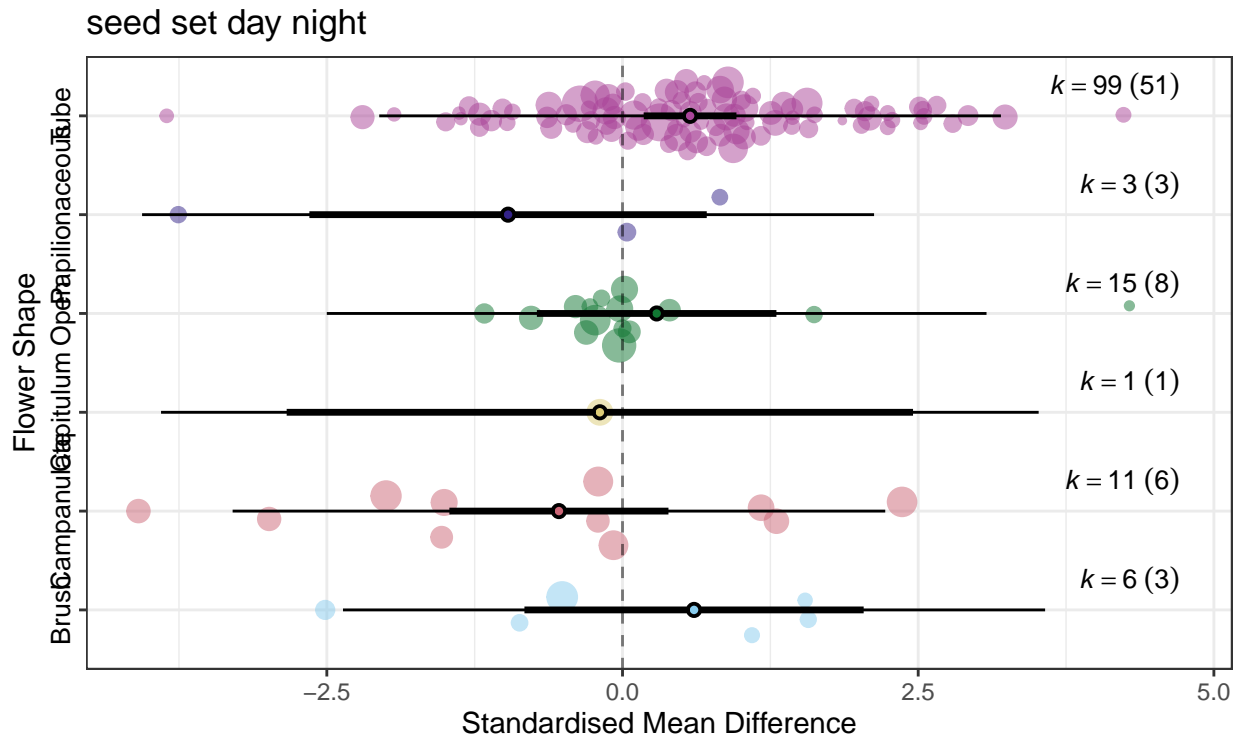
seed set day night

traits-11.pdf

```
##
## Multivariate Meta-Analysis Model (k = 135; method: REML)
##
## Variance Components:
##
##             estim    sqrt  nlvls  fixed        factor    R
## sigma^2.1  0.0000  0.0000     72     no       study_ID   no
## sigma^2.2  0.1913  0.4374    135     no      effect_ID   no
## sigma^2.3  0.0000  0.0001     70     no          phylo  yes
## sigma^2.4  1.4365  1.1985     70     no  accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 128) = 1192.2179, p-val < .0001
##
## Test of Moderators (coefficients 2:7):
## QM(df = 6) = 12.7831, p-val = 0.0466
##
## Model Results:
##
##             estimate      se     zval    pval    ci.lb    ci.ub
## intrcpt      -3.5427  1.2587  -2.8145  0.0049  -6.0098  -1.0757   **
## colorgreen    4.1002  1.3408   3.0581  0.0022   1.4723   6.7282   **
```

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```
## colorpink      3.9058  1.3086   2.9846  0.0028   1.3409   6.4706  **
## colorpurple    3.5577  1.4532   2.4481  0.0144   0.7094   6.4060   *
## colorred       2.8922  1.5504   1.8654  0.0621  -0.1466   5.9309   .
## colorwhite     4.1077  1.2782   3.2136  0.0013   1.6024   6.6130  **
## coloryellow    3.4536  1.3713   2.5185  0.0118   0.7659   6.1413   *
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
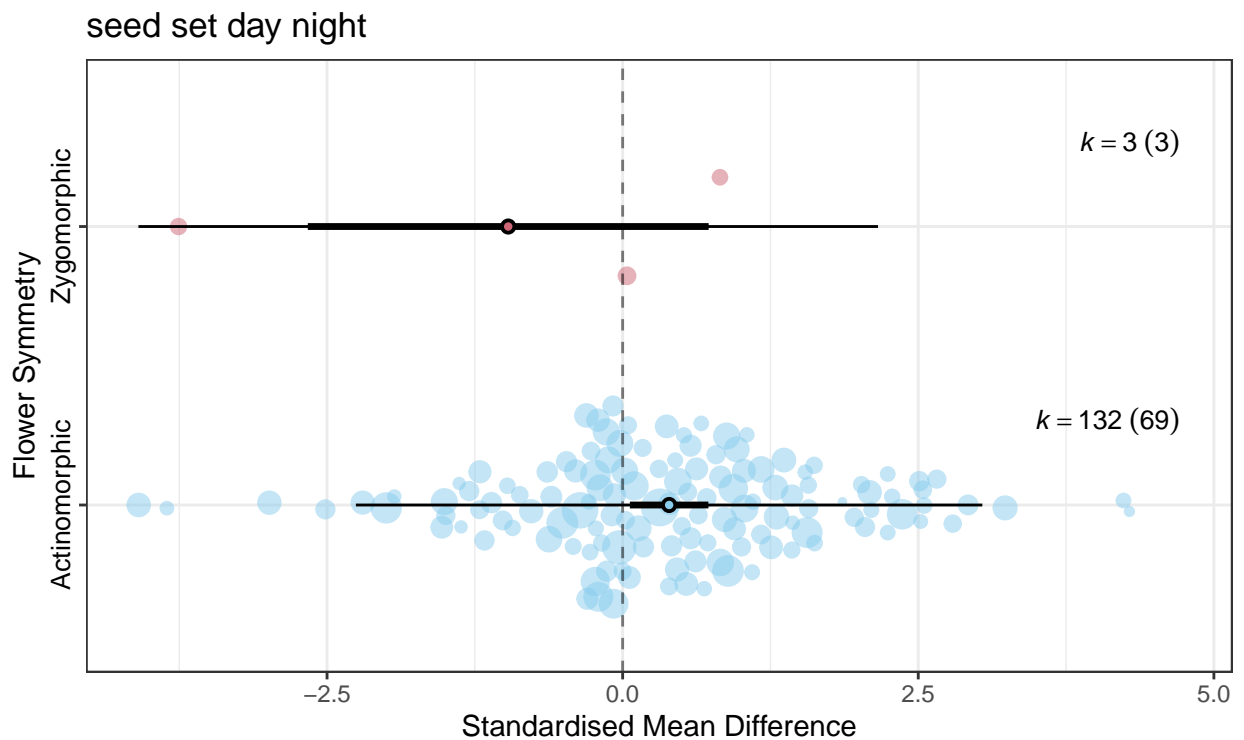

seed set day night

traits-12.pdf

```
##
## Multivariate Meta-Analysis Model (k = 135; method: REML)
##
## Variance Components:
##
##              estim    sqrt  nlvls  fixed          factor    R
## sigma^2.1  0.0000  0.0001     72     no        study_ID   no
## sigma^2.2  0.1893  0.4351    135     no        effect_ID   no
## sigma^2.3  0.0000  0.0000     70     no           phylo  yes
## sigma^2.4  1.5689  1.2525     70     no   accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 129) = 1382.7733, p-val < .0001
##
## Test of Moderators (coefficients 2:6):
## QM(df = 5) = 7.4118, p-val = 0.1918
##
## Model Results:
##
```

```
##                        estimate       se      zval     pval      ci.lb   ci.ub
## intrcpt                  0.6048   0.7317    0.8266   0.4085    -0.8293  2.0389
## flower_shapecampanulate -1.1425   0.8710   -1.3117   0.1896    -2.8495  0.5646
## flower_shapecapitulum   -0.7964   1.5364   -0.5183   0.6042    -3.8077  2.2149
## flower_shapeopen        -0.3162   0.8957   -0.3530   0.7241    -2.0717  1.4394
## flower_shapepapilionaceous -1.5725 1.1269  -1.3954   0.1629    -3.7812  0.6362
## flower_shapetube        -0.0335   0.7585   -0.0442   0.9648    -1.5201  1.4531
##
## intrcpt
## flower_shapecampanulate
## flower_shapecapitulum
## flower_shapeopen
## flower_shapepapilionaceous
## flower_shapetube
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```


seed set day night

traits-13.pdf

Precision (1/SE) ◯ 2.5 ◯ 5.0 ◯ 7.5

```
##
## Multivariate Meta-Analysis Model (k = 135; method: REML)
##
## Variance Components:
##
##              estim    sqrt  nlvls  fixed          factor    R
## sigma^2.1   0.0000  0.0000     72     no        study_ID   no
## sigma^2.2   0.1886  0.4343    135     no       effect_ID   no
## sigma^2.3   0.0000  0.0001     70     no           phylo  yes
## sigma^2.4   1.6093  1.2686     70     no   accepted_name   no
```

```
##
## Test for Residual Heterogeneity:
## QE(df = 133) = 1554.4200, p-val < .0001
##
## Test of Moderators (coefficient 2):
## QM(df = 1) = 2.3843, p-val = 0.1226
##
## Model Results:
##
##                            estimate      se     zval    pval    ci.lb   ci.ub
## intrcpt                      0.3930  0.1693   2.3217  0.0202   0.0612  0.7248
## flower_symmetryzygomorphic  -1.3607  0.8812  -1.5441  0.1226  -3.0877  0.3664
##
## intrcpt                       *
## flower_symmetryzygomorphic
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```


seed set day night

```
##
## Multivariate Meta-Analysis Model (k = 135; method: REML)
##
## Variance Components:
##
##              estim    sqrt  nlvls  fixed       factor    R
## sigma^2.1  0.0000  0.0000     72     no     study_ID   no
## sigma^2.2  0.1898  0.4357    135     no    effect_ID   no
## sigma^2.3  0.0000  0.0006     70     no        phylo  yes
```

traits-14.pdf

```
## sigma^2.4  1.7117  1.3083     70     no  accepted_name    no
##
## Test for Residual Heterogeneity:
## QE(df = 131) = 1547.2042, p-val < .0001
##
## Test of Moderators (coefficients 2:4):
## QM(df = 3) = 0.8951, p-val = 0.8266
##
## Model Results:
##
##                estimate      se     zval    pval    ci.lb    ci.ub
## intrcpt          0.3275  0.1960   1.6708  0.0948  -0.0567   0.7117  .
## life_formshrub  -0.2648  0.5794  -0.4570  0.6477  -1.4004   0.8708
## life_formtree    0.4201  0.5536   0.7589  0.4479  -0.6650   1.5052
## life_formvine   -0.0895  0.9133  -0.0980  0.9219  -1.8795   1.7005
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
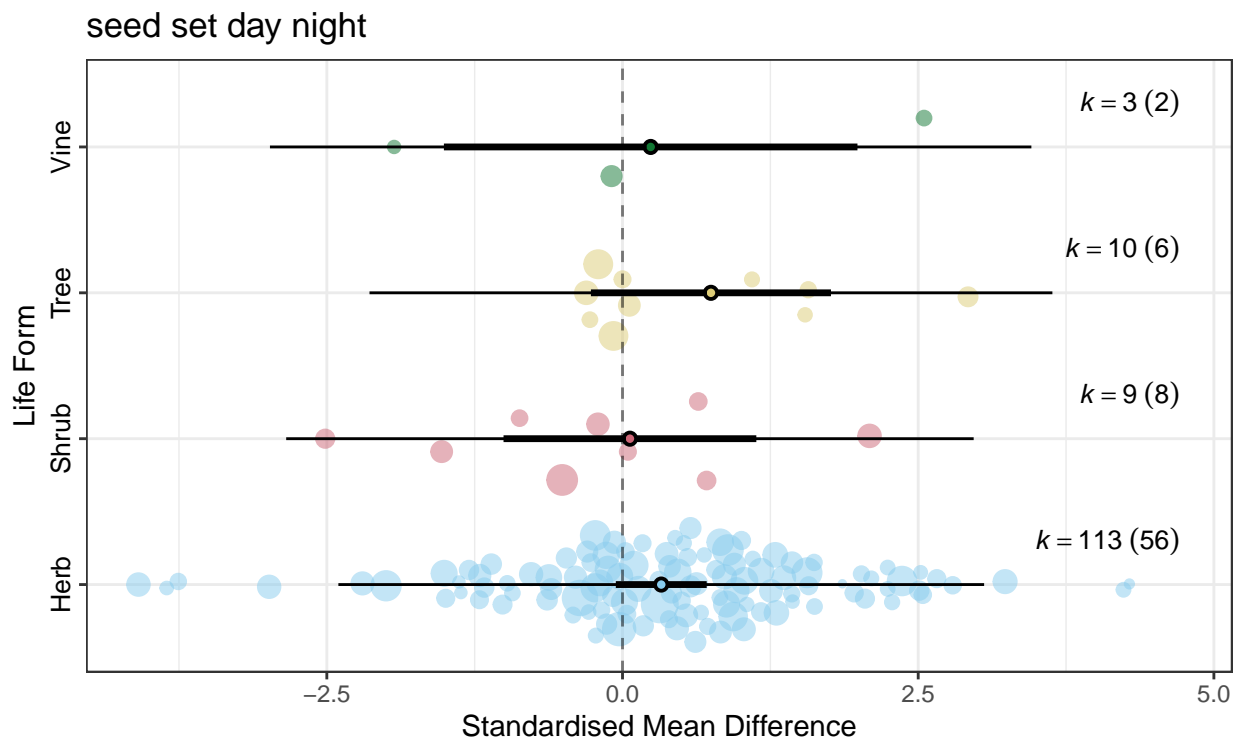
seed set day night
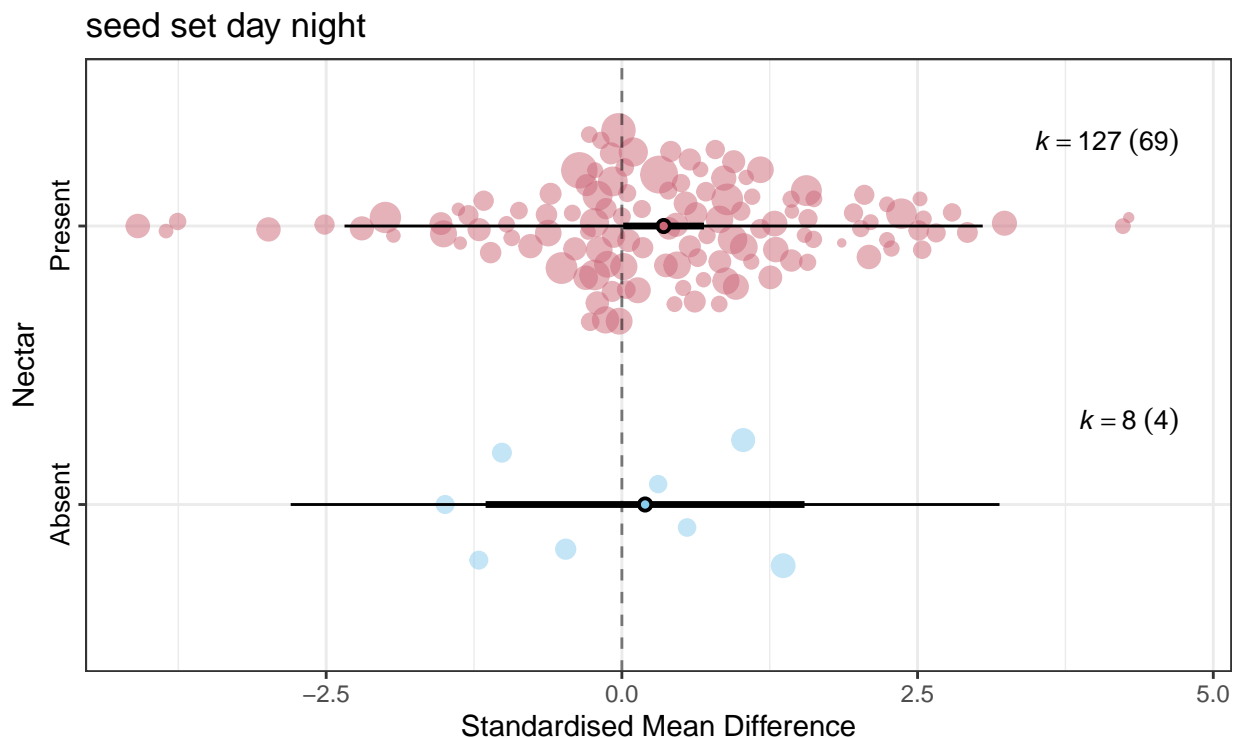

traits-15.pdf

```
##
## Multivariate Meta-Analysis Model (k = 135; method: REML)
##
## Variance Components:
##
##             estim    sqrt  nlvls  fixed        factor    R
## sigma^2.1  0.0000  0.0000     72     no      study_ID   no
## sigma^2.2  0.1887  0.4344    135     no     effect_ID   no
## sigma^2.3  0.0000  0.0001     70     no         phylo  yes
```

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```
## sigma^2.4  1.6685  1.2917     70     no  accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 133) = 1563.2943, p-val < .0001
##
## Test of Moderators (coefficient 2):
## QM(df = 1) = 0.3080, p-val = 0.5789
##
## Model Results:
##
##                    estimate      se     zval    pval    ci.lb   ci.ub
## intrcpt              0.3703  0.1755   2.1103  0.0348   0.0264  0.7142  *
## lifespanshort-lived  -0.3537  0.6373  -0.5550  0.5789  -1.6027  0.8954
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

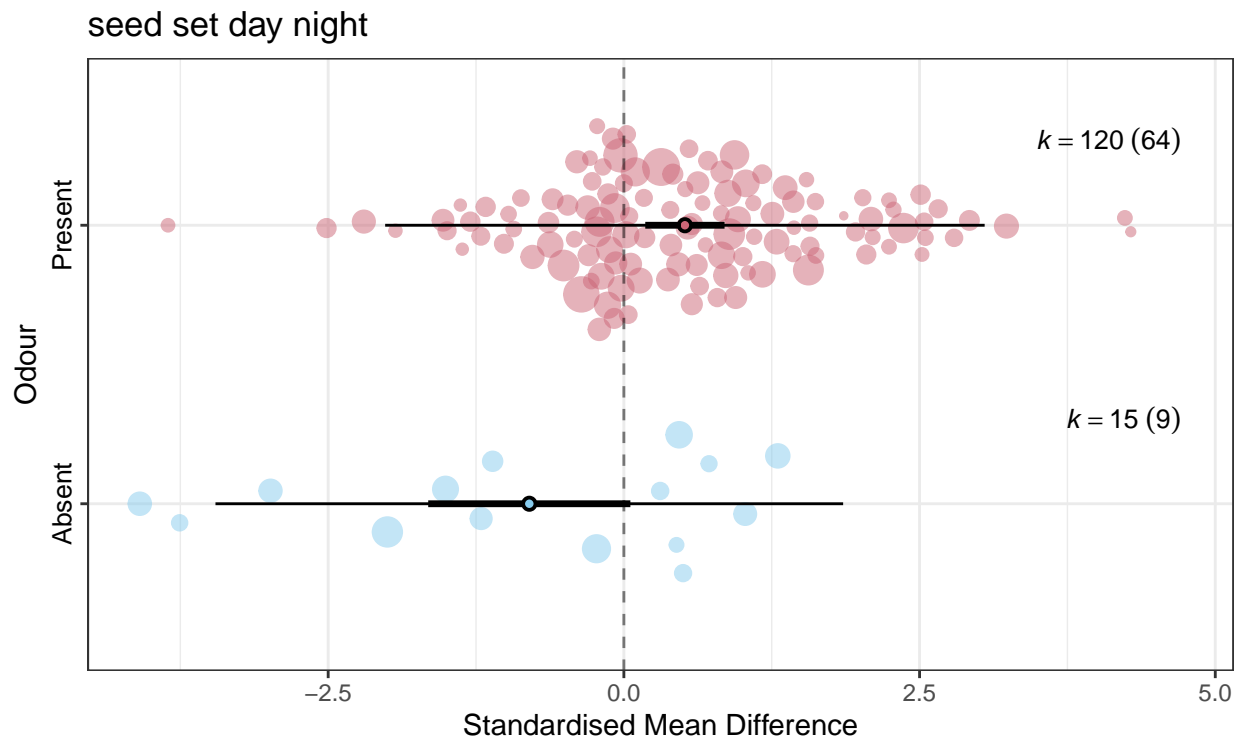### seed set day night
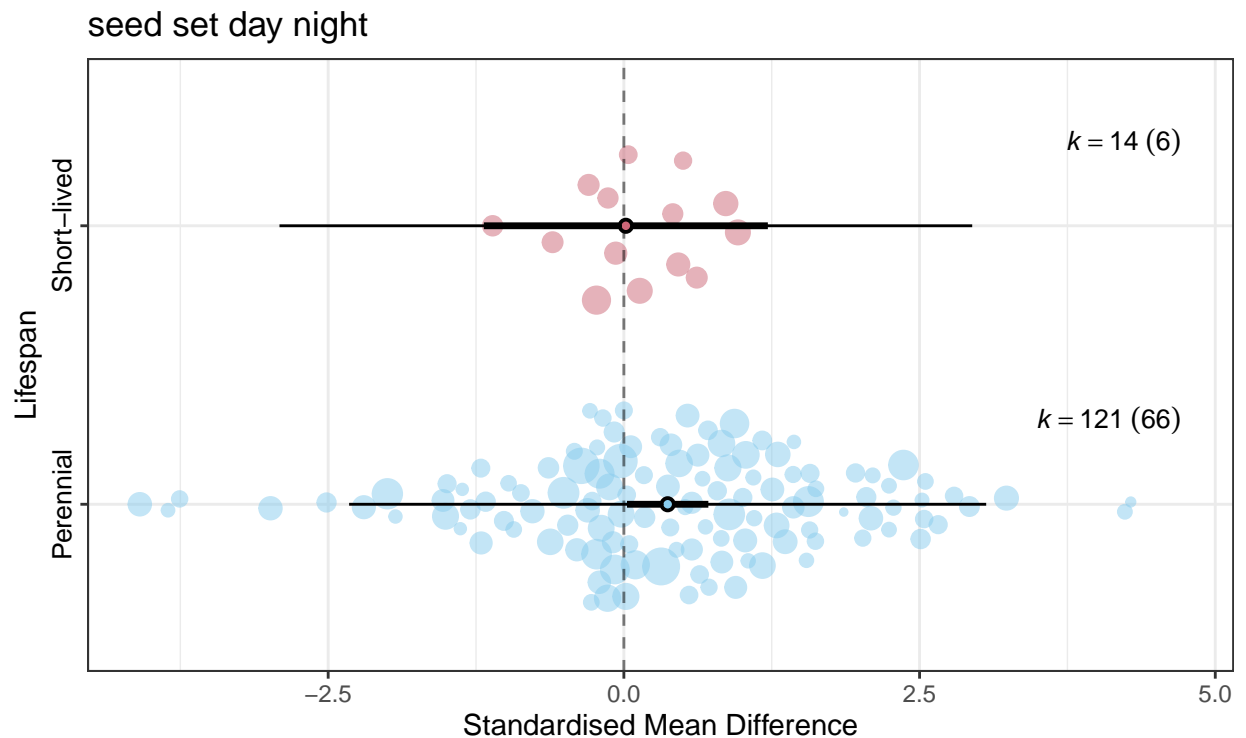
traits-16.pdf

Precision (1/SE) ◯ 2.5 ◯ 5.0 ◯ 7.5

```
##
## Multivariate Meta-Analysis Model (k = 135; method: REML)
##
## Variance Components:
##
##              estim    sqrt  nlvls  fixed        factor    R
## sigma^2.1  0.0000  0.0000     72     no       study_ID   no
## sigma^2.2  0.1891  0.4348    135     no      effect_ID   no
## sigma^2.3  0.0000  0.0002     70     no          phylo  yes
## sigma^2.4  1.6752  1.2943     70     no  accepted_name   no
##
```

```
## Test for Residual Heterogeneity:
## QE(df = 133) = 1563.5459, p-val < .0001
##
## Test of Moderators (coefficient 2):
## QM(df = 1) = 0.0488, p-val = 0.8252
##
## Model Results:
##
##               estimate      se    zval    pval    ci.lb   ci.ub
## intrcpt         0.1963  0.6879  0.2854  0.7754  -1.1519  1.5445
## nectarpresent   0.1567  0.7096  0.2208  0.8252  -1.2341  1.5475
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

seed set day night

traits-17.pdf

```
##
## Multivariate Meta-Analysis Model (k = 135; method: REML)
##
## Variance Components:
##
##            estim    sqrt  nlvls  fixed          factor    R
## sigma^2.1  0.0000  0.0000     72     no        study_ID   no
## sigma^2.2  0.1907  0.4367    135     no        effect_ID   no
## sigma^2.3  0.0000  0.0001     70     no           phylo  yes
## sigma^2.4  1.4519  1.2050     70     no   accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 133) = 1320.5970, p-val < .0001
```

```
##
## Test of Moderators (coefficient 2):
## QM(df = 1) = 7.8891, p-val = 0.0050
##
## Model Results:
##
##               estimate      se     zval    pval    ci.lb   ci.ub
## intrcpt        -0.7996  0.4361  -1.8336  0.0667  -1.6542  0.0551   .
## odourpresent    1.3155  0.4684   2.8088  0.0050   0.3976  2.2335  **
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
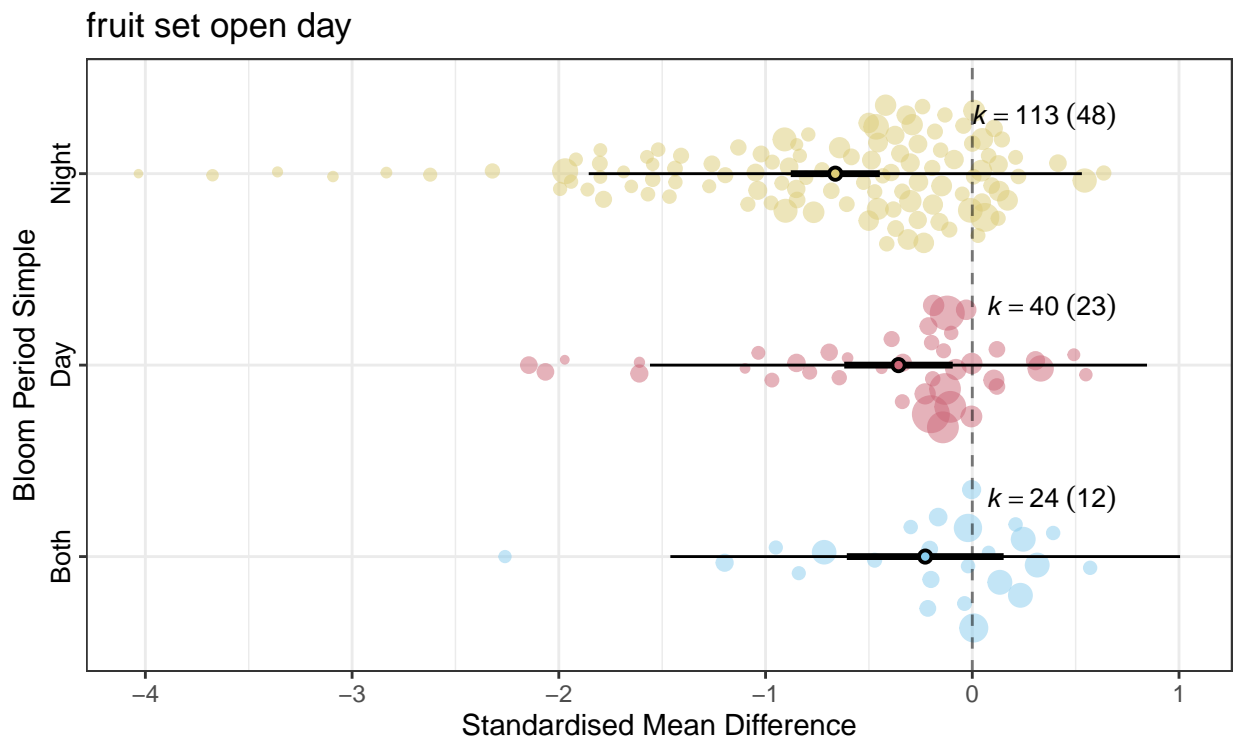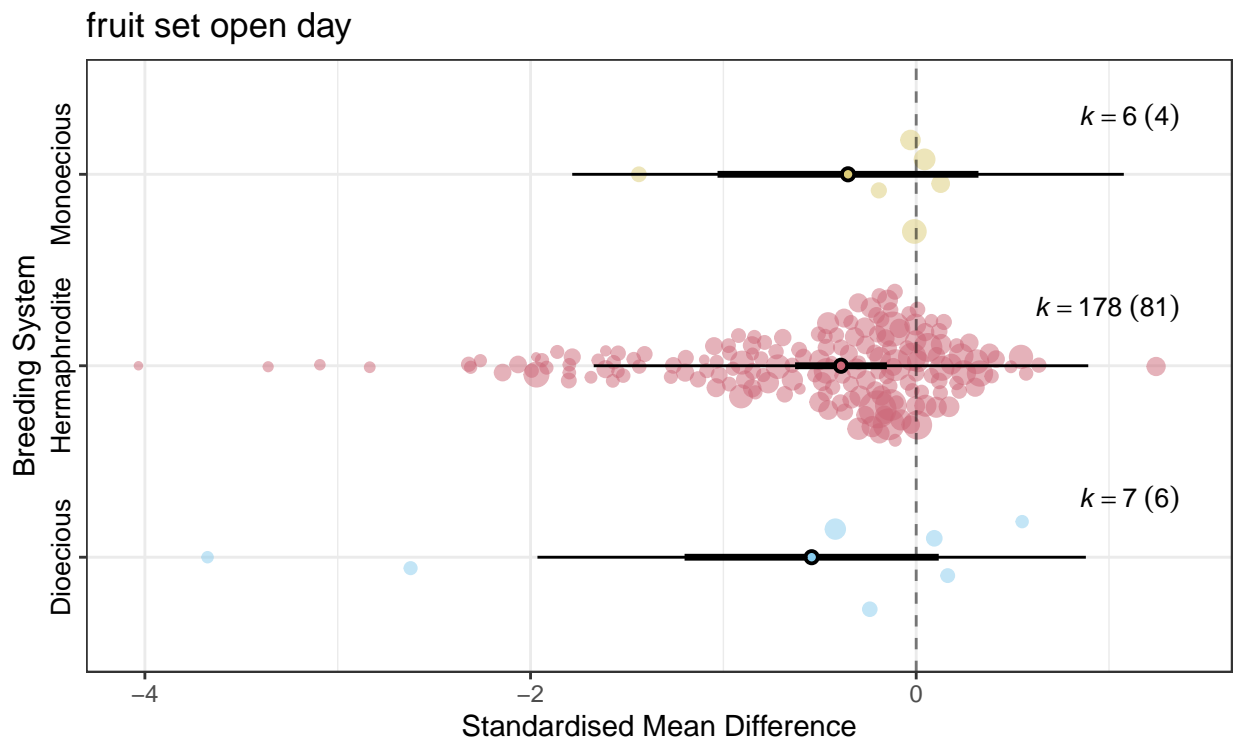

seed set day night

traits-18.pdf

```
##
## Multivariate Meta-Analysis Model (k = 177; method: REML)
##
## Variance Components:
##
##              estim    sqrt  nlvls  fixed          factor    R
## sigma^2.1   0.2415  0.4914     80     no        study_ID   no
## sigma^2.2   0.0460  0.2145    177     no       effect_ID   no
## sigma^2.3   0.0162  0.1275     81     no           phylo  yes
## sigma^2.4   0.0545  0.2334     81     no   accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 174) = 1728.7685, p-val < .0001
##
## Test of Moderators (coefficients 2:3):
```

```
## QM(df = 2) = 6.5498, p-val = 0.0378
##
## Model Results:
##
##                         estimate      se     zval    pval   ci.lb    ci.ub
## intrcpt                  -0.2276  0.1935  -1.1762  0.2395  -0.6069   0.1517
## bloom_period_simpleday   -0.1293  0.2270  -0.5698  0.5688  -0.5743   0.3156
## bloom_period_simplenight -0.4350  0.2136  -2.0370  0.0417  -0.8536  -0.0164
##
## intrcpt
## bloom_period_simpleday
## bloom_period_simplenight  *
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
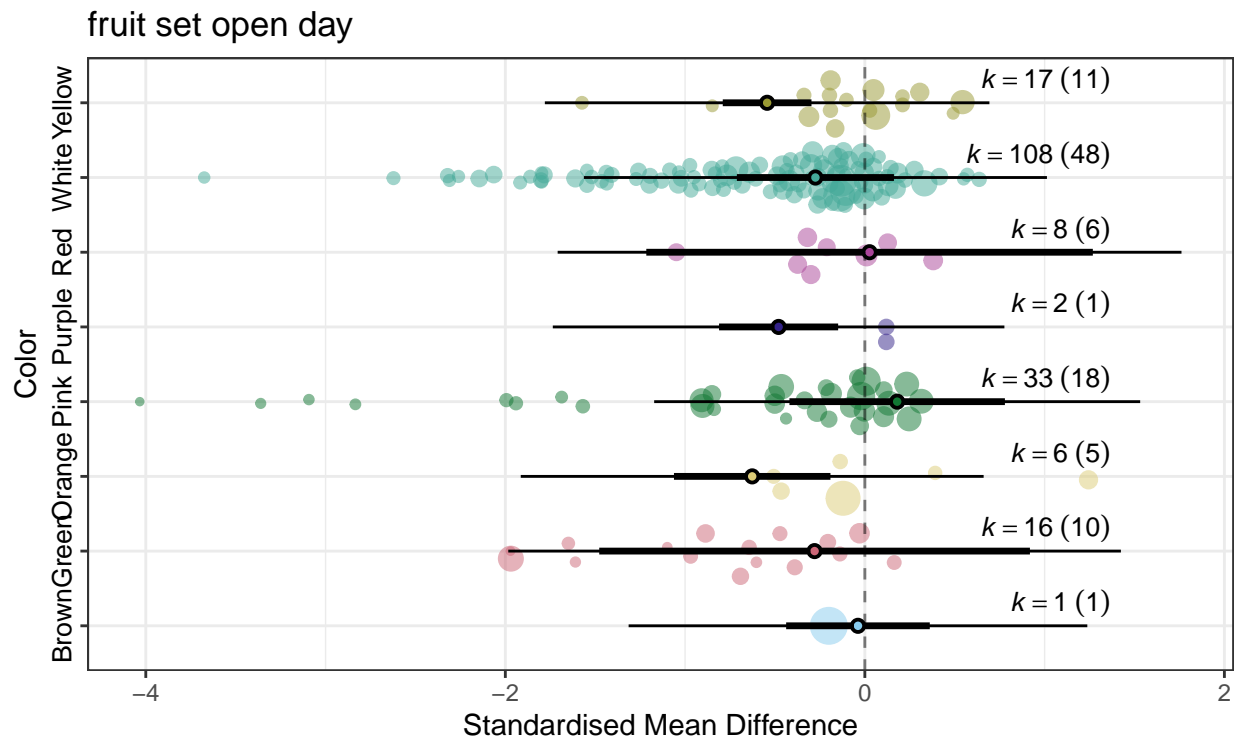
fruit set open day

traits-19.pdf

Precision (1/SE) ○ 10 ○ 20 ○ 30

```
##
## Multivariate Meta-Analysis Model (k = 191; method: REML)
##
## Variance Components:
##
##              estim    sqrt  nlvls  fixed           factor    R
## sigma^2.1   0.2425  0.4924     90     no         study_ID   no
## sigma^2.2   0.0443  0.2105    191     no         effect_ID   no
## sigma^2.3   0.0748  0.2735     92     no            phylo  yes
## sigma^2.4   0.0517  0.2275     92     no    accepted_name   no
##
## Test for Residual Heterogeneity:
```

```
## QE(df = 188) = 2073.3395, p-val < .0001
##
## Test of Moderators (coefficients 2:3):
## QM(df = 2) = 0.2284, p-val = 0.8921
##
## Model Results:
##
##                                estimate      se     zval    pval    ci.lb
## intrcpt                         -0.5421  0.3363  -1.6122  0.1069  -1.2012
## breeding_systemhermaphrodite     0.1521  0.3297   0.4614  0.6445  -0.4942
## breeding_systemmonoecious        0.1885  0.4678   0.4030  0.6869  -0.7283
##                                   ci.ub
## intrcpt                          0.1169
## breeding_systemhermaphrodite     0.7984
## breeding_systemmonoecious        1.1054
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

fruit set open day

traits-20.pdf

```
##
## Multivariate Meta-Analysis Model (k = 191; method: REML)
##
## Variance Components:
##
##             estim    sqrt   nlvls  fixed      factor    R
## sigma^2.1  0.2446  0.4946      90     no    study_ID   no
## sigma^2.2  0.0406  0.2015     191     no   effect_ID   no
## sigma^2.3  0.0534  0.2311      92     no       phylo  yes
```

```
## sigma^2.4  0.0435  0.2087      92      no  accepted_name    no
##
## Test for Residual Heterogeneity:
## QE(df = 183) = 1575.6790, p-val < .0001
##
## Test of Moderators (coefficients 2:8):
## QM(df = 7) = 13.5614, p-val = 0.0596
##
## Model Results:
##
##              estimate      se     zval    pval    ci.lb    ci.ub
## intrcpt       -0.0383  0.2038  -0.1879  0.8509  -0.4378   0.3612
## colorbrown    -0.2413  0.6332  -0.3812  0.7031  -1.4823   0.9997
## colorgreen    -0.5884  0.2576  -2.2839  0.0224  -1.0934  -0.0835  *
## colororange    0.2181  0.3525   0.6188  0.5360  -0.4727   0.9090
## colorpink     -0.4415  0.2403  -1.8372  0.0662  -0.9124   0.0295  .
## colorpurple    0.0646  0.6592   0.0980  0.9220  -1.2274   1.3565
## colorred      -0.2368  0.2809  -0.8427  0.3994  -0.7874   0.3139
## colorwhite    -0.5053  0.2071  -2.4398  0.0147  -0.9112  -0.0994  *
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

fruit set open day

traits-21.pdf

```
##
## Multivariate Meta-Analysis Model (k = 191; method: REML)
##
## Variance Components:
##
```

```
##                estim    sqrt   nlvls  fixed        factor     R
## sigma^2.1   0.2352   0.4850     90     no       study_ID    no
## sigma^2.2   0.0451   0.2124    191     no       effect_ID    no
## sigma^2.3   0.0334   0.1828     92     no          phylo   yes
## sigma^2.4   0.0590   0.2429     92     no  accepted_name    no
##
## Test for Residual Heterogeneity:
## QE(df = 186) = 1658.2381, p-val < .0001
##
## Test of Moderators (coefficients 2:5):
## QM(df = 4) = 7.8454, p-val = 0.0974
##
## Model Results:
##
##                            estimate      se     zval     pval    ci.lb    ci.ub
## intrcpt                     -0.1290  0.2260  -0.5706   0.5682  -0.5720   0.3140
## flower_shapecampanulate     -0.3104  0.3556  -0.8731   0.3826  -1.0073   0.3865
## flower_shapeopen             0.0802  0.2712   0.2956   0.7675  -0.4514   0.6117
## flower_shapepapilionaceous  -0.5085  0.4479  -1.1353   0.2562  -1.3864   0.3694
## flower_shapetube            -0.4505  0.2465  -1.8280   0.0675  -0.9336   0.0325
##
## intrcpt
## flower_shapecampanulate
## flower_shapeopen
## flower_shapepapilionaceous
## flower_shapetube               .
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

fruit set open day

$k = 139\ (60)$
$k = 7\ (5)$
$k = 24\ (12)$
$k = 7\ (6)$
$k = 14\ (8)$

Flower Shape: Brush Campanulate Open Papilionaceous Tube

Standardised Mean Difference
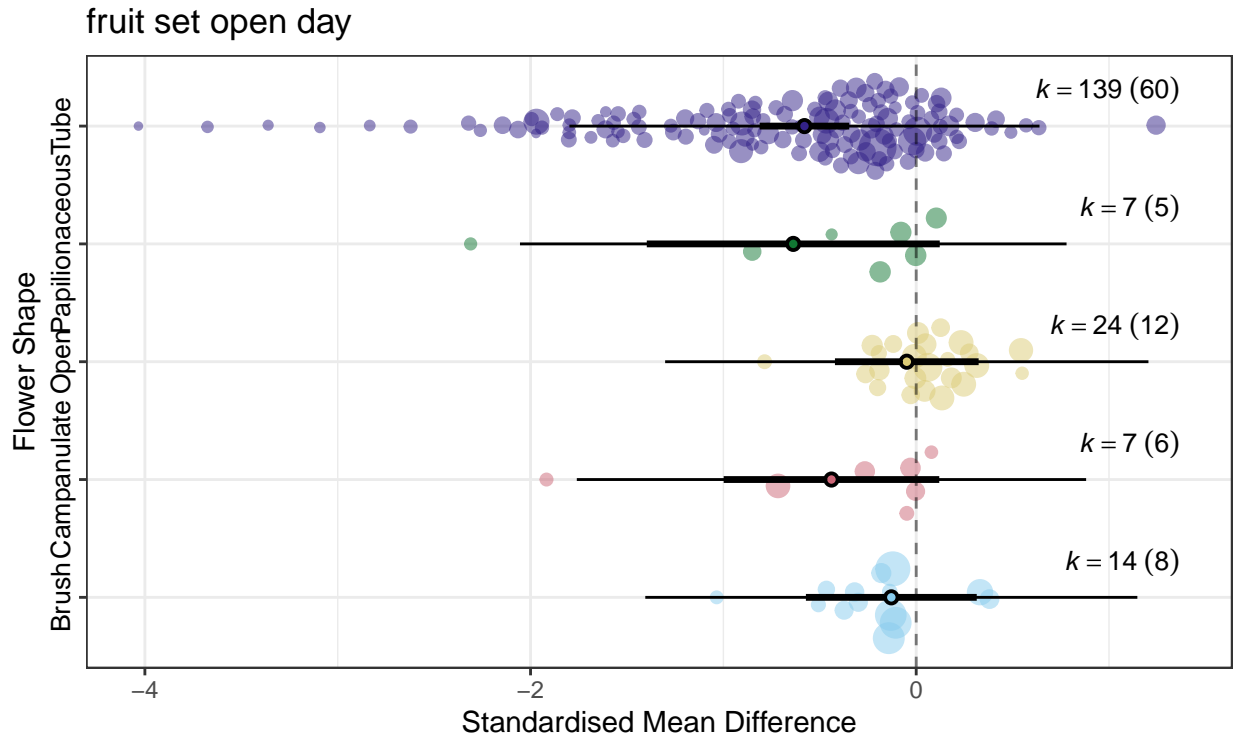
Precision (1/SE) ○ 10 ○ 20 ○ 30

traits-22.pdf
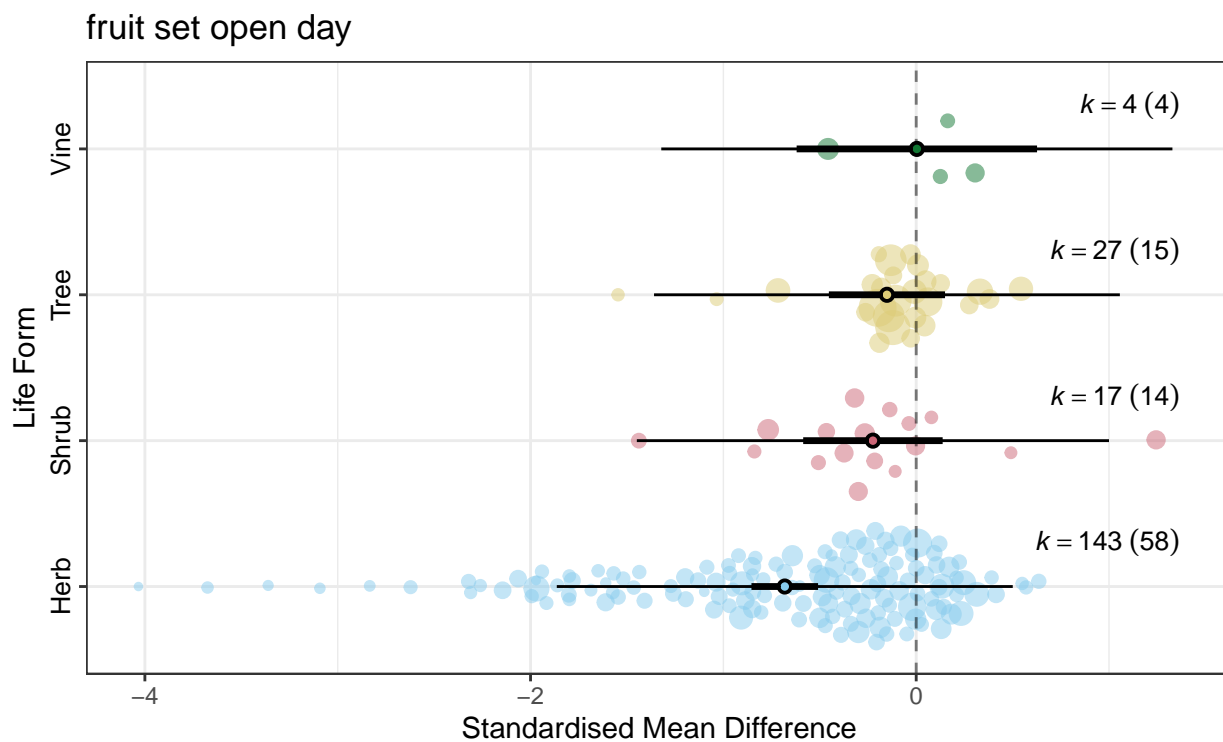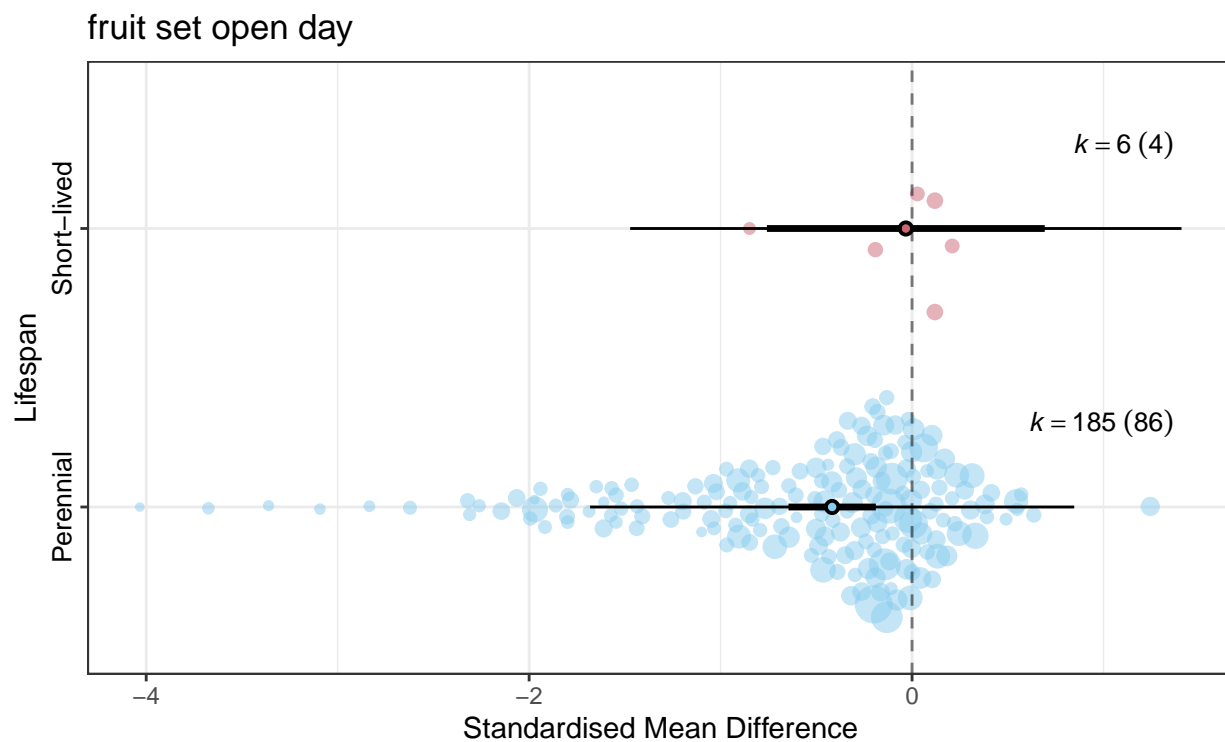
```
##
## Multivariate Meta-Analysis Model (k = 191; method: REML)
##
## Variance Components:
##
##             estim    sqrt   nlvls  fixed          factor    R
## sigma^2.1  0.2421  0.4920      90     no        study_ID   no
## sigma^2.2  0.0440  0.2098     191     no       effect_ID   no
## sigma^2.3  0.0744  0.2728      92     no           phylo  yes
## sigma^2.4  0.0496  0.2228      92     no   accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 189) = 2081.0430, p-val < .0001
##
## Test of Moderators (coefficient 2):
## QM(df = 1) = 0.0004, p-val = 0.9841
##
## Model Results:
##
##                             estimate      se     zval    pval    ci.lb    ci.ub
## intrcpt                      -0.3938  0.1229  -3.2034  0.0014  -0.6347  -0.1528
## flower_symmetryzygomorphic   -0.0057  0.2888  -0.0199  0.9841  -0.5717   0.5602
##
## intrcpt                    **
## flower_symmetryzygomorphic
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
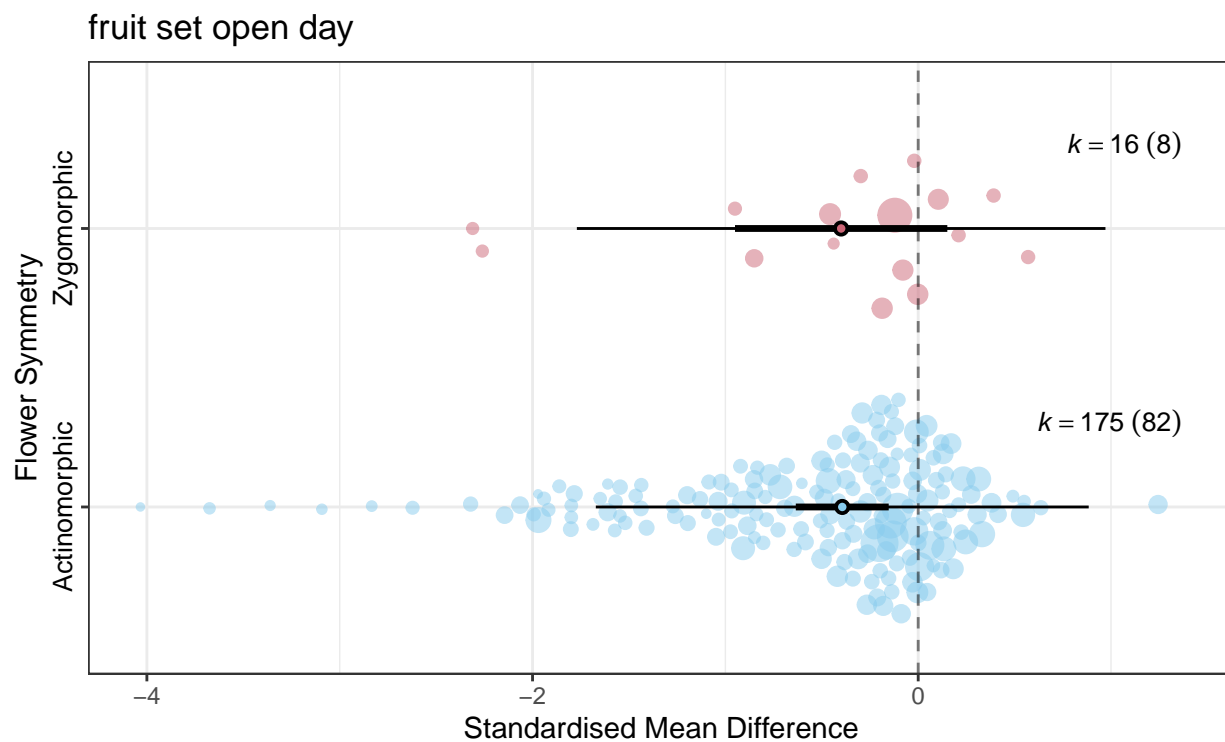
45

fruit set open day

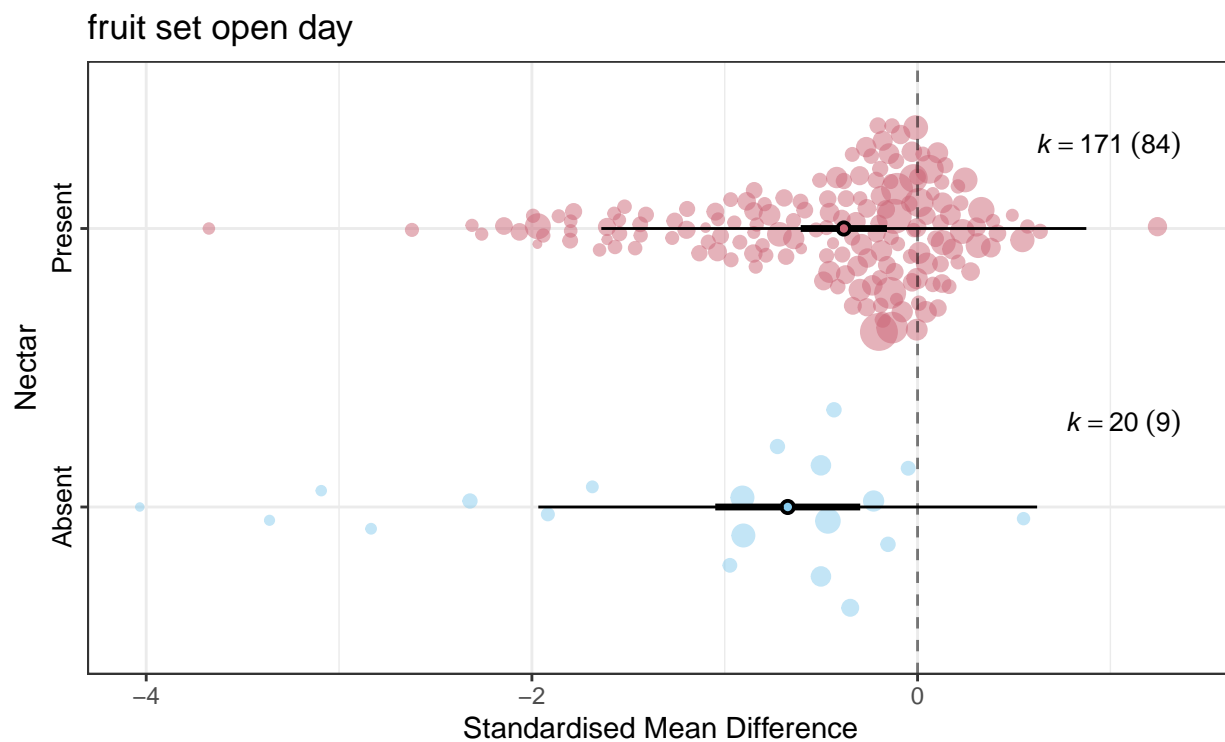traits-23.pdf

```
##
## Multivariate Meta-Analysis Model (k = 191; method: REML)
##
## Variance Components:
##
##              estim    sqrt  nlvls  fixed          factor    R
## sigma^2.1  0.2472  0.4972     90     no        study_ID   no
## sigma^2.2  0.0447  0.2115    191     no        effect_ID   no
## sigma^2.3  0.0009  0.0307     92     no           phylo  yes
## sigma^2.4  0.0633  0.2516     92     no   accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 187) = 1917.2403, p-val < .0001
##
## Test of Moderators (coefficients 2:4):
## QM(df = 3) = 13.5814, p-val = 0.0035
##
## Model Results:
##
##                 estimate      se     zval    pval    ci.lb    ci.ub
## intrcpt          -0.6816  0.0881  -7.7337  <.0001  -0.8543  -0.5088   ***
## life_formshrub    0.4572  0.2041   2.2404  0.0251   0.0572   0.8572     *
## life_formtree     0.5299  0.1768   2.9969  0.0027   0.1834   0.8765    **
## life_formvine     0.6849  0.3298   2.0767  0.0378   0.0385   1.3314     *
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

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```
##
## Multivariate Meta-Analysis Model (k = 191; method: REML)
##
## Variance Components:
##
##             estim   sqrt  nlvls  fixed          factor   R
## sigma^2.1  0.2416  0.4915    90    no         study_ID   no
## sigma^2.2  0.0441  0.2099   191    no        effect_ID   no
## sigma^2.3  0.0678  0.2604    92    no            phylo  yes
## sigma^2.4  0.0491  0.2216    92    no    accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 189) = 2085.5968, p-val < .0001
##
## Test of Moderators (coefficient 2):
## QM(df = 1) = 1.0744, p-val = 0.3000
##
## Model Results:
##
##                      estimate      se     zval    pval    ci.lb    ci.ub
## intrcpt               -0.4173  0.1164  -3.5840  0.0003  -0.6454  -0.1891   ***
## lifespanshort-lived    0.3848  0.3712   1.0365  0.3000  -0.3428   1.1123
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
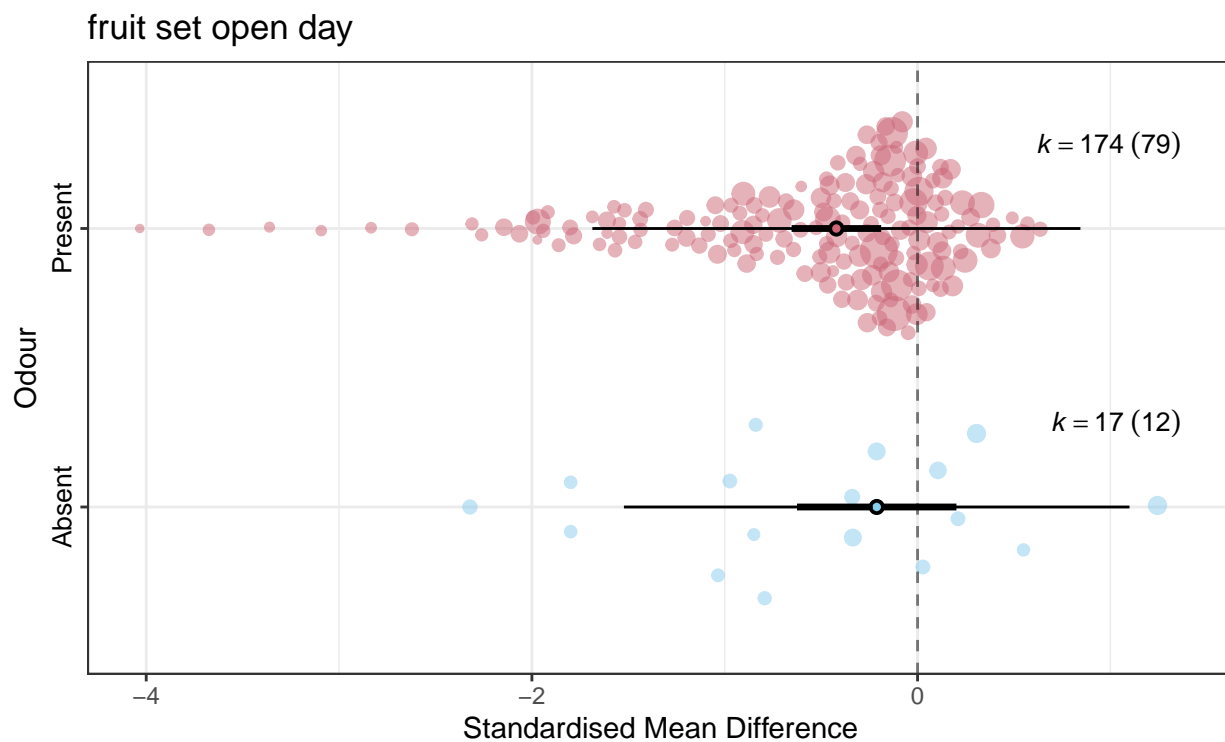
fruit set open day

traits-25.pdf

Precision (1/SE) ○ 10 ○ 20 ○ 30

```
##
## Multivariate Meta-Analysis Model (k = 191; method: REML)
##
## Variance Components:
##
##              estim    sqrt  nlvls  fixed          factor    R
## sigma^2.1  0.2583  0.5083     90     no        study_ID   no
## sigma^2.2  0.0486  0.2204    191     no        effect_ID   no
## sigma^2.3  0.0664  0.2577     92     no           phylo  yes
## sigma^2.4  0.0254  0.1593     92     no  accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 189) = 1946.7422, p-val < .0001
##
## Test of Moderators (coefficient 2):
## QM(df = 1) = 3.1698, p-val = 0.0750
##
## Model Results:
##
##               estimate       se     zval     pval     ci.lb     ci.ub
## intrcpt        -0.6733   0.1917  -3.5113   0.0004   -1.0491   -0.2975   ***
## nectarpresent   0.2909   0.1634   1.7804   0.0750   -0.0293    0.6111     .
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

fruit set open day

$k = 171\,(84)$

$k = 20\,(9)$

Nectar — Present / Absent
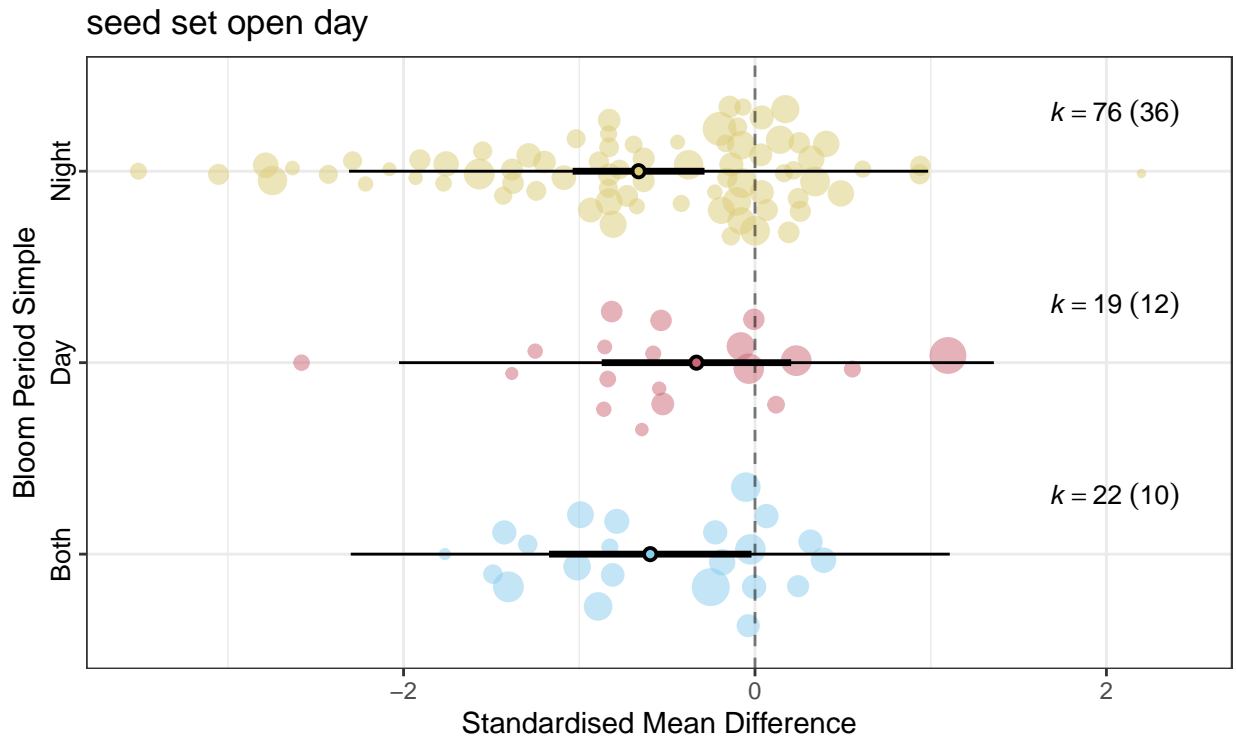
Standardised Mean Difference

traits-26.pdf

Precision (1/SE) ○ 10 ○ 20 ○ 30

```
##
## Multivariate Meta-Analysis Model (k = 191; method: REML)
##
## Variance Components:
##
##             estim    sqrt  nlvls  fixed        factor    R
## sigma^2.1  0.2389  0.4887     90     no      study_ID   no
## sigma^2.2  0.0437  0.2091    191     no     effect_ID   no
## sigma^2.3  0.0704  0.2654     92     no         phylo  yes
## sigma^2.4  0.0499  0.2233     92     no accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 189) = 2083.3875, p-val < .0001
##
## Test of Moderators (coefficient 2):
## QM(df = 1) = 1.0888, p-val = 0.2967
##
## Model Results:
##
##               estimate      se     zval    pval   ci.lb   ci.ub
## intrcpt        -0.2119  0.2109  -1.0046  0.3151  -0.6252  0.2015
## odourpresent   -0.2092  0.2004  -1.0434  0.2967  -0.6020  0.1837
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

fruit set open day

```
##
## Multivariate Meta-Analysis Model (k = 117; method: REML)
##
## Variance Components:
##
##            estim    sqrt  nlvls  fixed         factor    R
## sigma^2.1  0.0000  0.0000    57     no       study_ID   no
## sigma^2.2  0.1439  0.3794   117     no      effect_ID   no
## sigma^2.3  0.0721  0.2685    54     no          phylo  yes
## sigma^2.4  0.4540  0.6738    54     no  accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 114) = 765.7035, p-val < .0001
##
## Test of Moderators (coefficients 2:3):
## QM(df = 2) = 1.1199, p-val = 0.5712
##
## Model Results:
##
##                          estimate      se     zval    pval    ci.lb    ci.ub
## intrcpt                   -0.5960  0.2939  -2.0281  0.0426  -1.1720  -0.0200
## bloom_period_simpleday     0.2628  0.3806   0.6905  0.4899  -0.4832   1.0088
## bloom_period_simplenight  -0.0664  0.3156  -0.2104  0.8334  -0.6850   0.5522
##
## intrcpt                  *
## bloom_period_simpleday
## bloom_period_simplenight
##
```

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

seed set open day
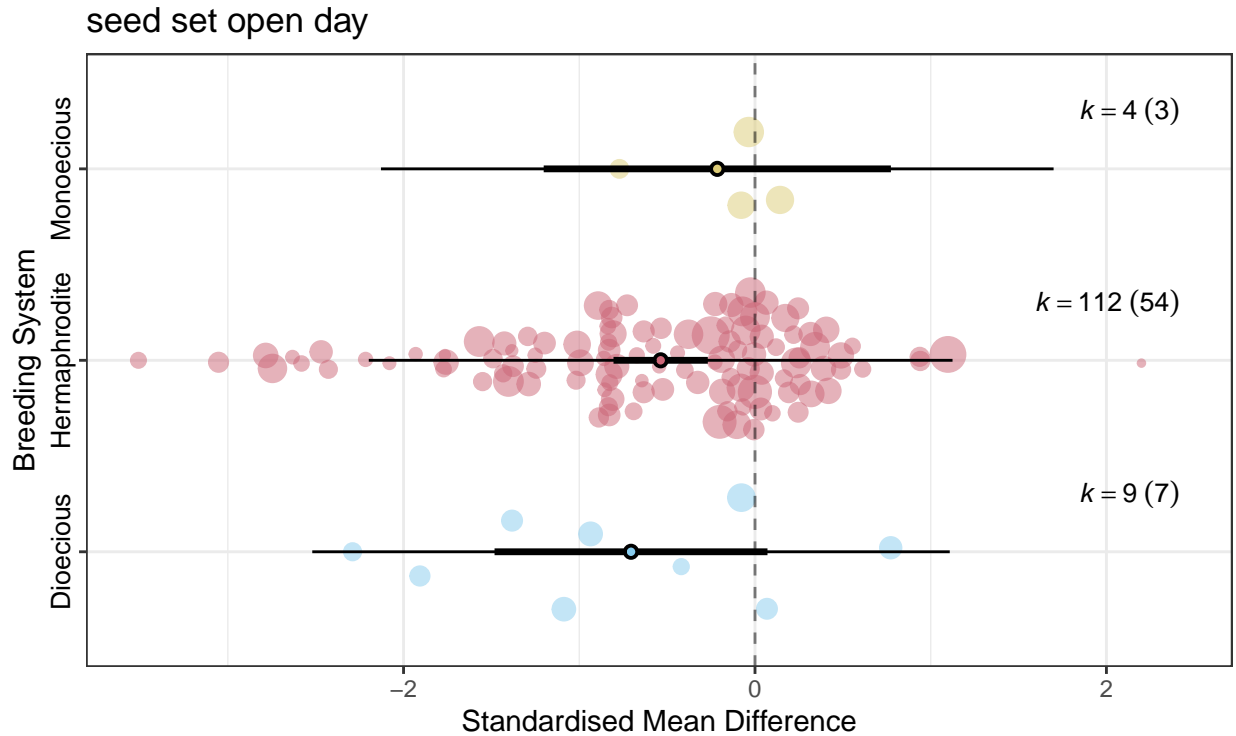

traits-28.pdf

```
##
## Multivariate Meta-Analysis Model (k = 125; method: REML)
##
## Variance Components:
##
##             estim    sqrt  nlvls  fixed          factor    R
## sigma^2.1  0.0000  0.0000     64     no        study_ID   no
## sigma^2.2  0.1461  0.3822    125     no       effect_ID   no
## sigma^2.3  0.0252  0.1587     61     no           phylo  yes
## sigma^2.4  0.5282  0.7268     61     no   accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 122) = 929.3696, p-val < .0001
##
## Test of Moderators (coefficients 2:3):
## QM(df = 2) = 0.5970, p-val = 0.7419
##
## Model Results:
##
##                            estimate      se     zval    pval     ci.lb
## intrcpt                     -0.7055  0.3963  -1.7804  0.0750   -1.4822
## breeding_systemhermaphrodite  0.1687  0.4098   0.4118  0.6805   -0.6344
## breeding_systemmonoecious     0.4910  0.6367   0.7712  0.4406   -0.7569
##                               ci.ub
## intrcpt                      0.0711  .
```

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```
## breeding_systemhermaphrodite  0.9718
## breeding_systemmonoecious      1.7389
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

seed set open day

traits-29.pdf

```
##
## Multivariate Meta-Analysis Model (k = 125; method: REML)
##
## Variance Components:
##
##              estim    sqrt  nlvls  fixed           factor    R
## sigma^2.1  0.0000  0.0000     64     no         study_ID   no
## sigma^2.2  0.1446  0.3802    125     no         effect_ID   no
## sigma^2.3  0.0703  0.2652     61     no            phylo  yes
## sigma^2.4  0.5412  0.7357     61     no    accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 118) = 906.1191, p-val < .0001
##
## Test of Moderators (coefficients 2:7):
## QM(df = 6) = 1.5216, p-val = 0.9580
##
## Model Results:
##
##            estimate      se     zval     pval    ci.lb   ci.ub
## intrcpt      0.1716  0.8341   0.2057   0.8370  -1.4633  1.8064
## colorgreen  -0.7954  0.9046  -0.8793   0.3792  -2.5684  0.9775
```

```
## colorpink     -0.8498  0.8712  -0.9754  0.3294  -2.5572  0.8577
## colorpurple   -0.5536  0.9303  -0.5951  0.5518  -2.3770  1.2698
## colorred      -0.4547  1.2508  -0.3635  0.7162  -2.9063  1.9969
## colorwhite    -0.6986  0.8435  -0.8282  0.4075  -2.3518  0.9546
## coloryellow   -0.4919  0.9168  -0.5366  0.5916  -2.2889  1.3050
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
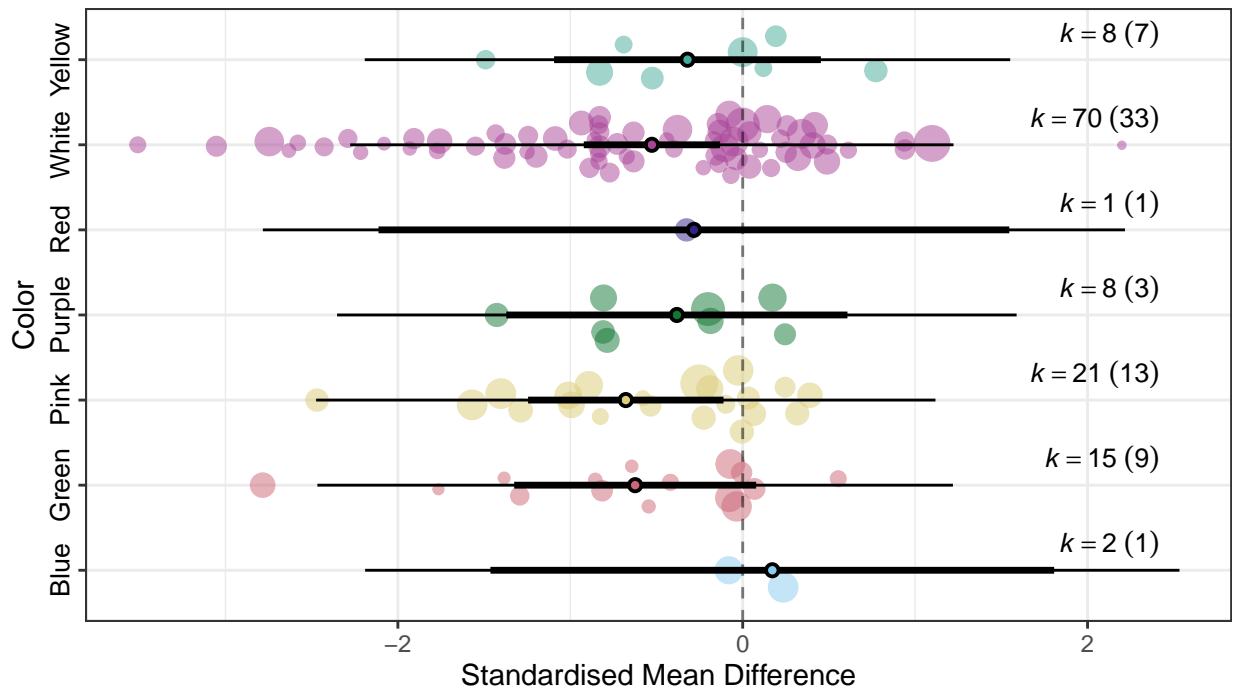

seed set open day

traits-30.pdf

```
##
## Multivariate Meta-Analysis Model (k = 125; method: REML)
##
## Variance Components:
##
##            estim    sqrt  nlvls  fixed         factor    R
## sigma^2.1  0.0000  0.0000     64     no       study_ID   no
## sigma^2.2  0.1451  0.3810    125     no       effect_ID  no
## sigma^2.3  0.0478  0.2185     61     no          phylo  yes
## sigma^2.4  0.5009  0.7077     61     no  accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 119) = 894.7931, p-val < .0001
##
## Test of Moderators (coefficients 2:6):
## QM(df = 5) = 4.8000, p-val = 0.4408
##
## Model Results:
##
```

```
##                                estimate      se     zval    pval    ci.lb   ci.ub
## intrcpt                         -0.9948  0.5150  -1.9315  0.0534  -2.0043  0.0147
## flower_shapecampanulate          0.6889  0.5990   1.1500  0.2501  -0.4852  1.8630
## flower_shapecapitulum            1.4262  1.0090   1.4135  0.1575  -0.5514  3.4037
## flower_shapeopen                 0.9775  0.6369   1.5346  0.1249  -0.2709  2.2258
## flower_shapepapilionaceous       0.3527  0.7757   0.4547  0.6493  -1.1676  1.8730
## flower_shapetube                 0.3590  0.5372   0.6683  0.5039  -0.6939  1.4119
##
## intrcpt                         .
## flower_shapecampanulate
## flower_shapecapitulum
## flower_shapeopen
## flower_shapepapilionaceous
## flower_shapetube
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
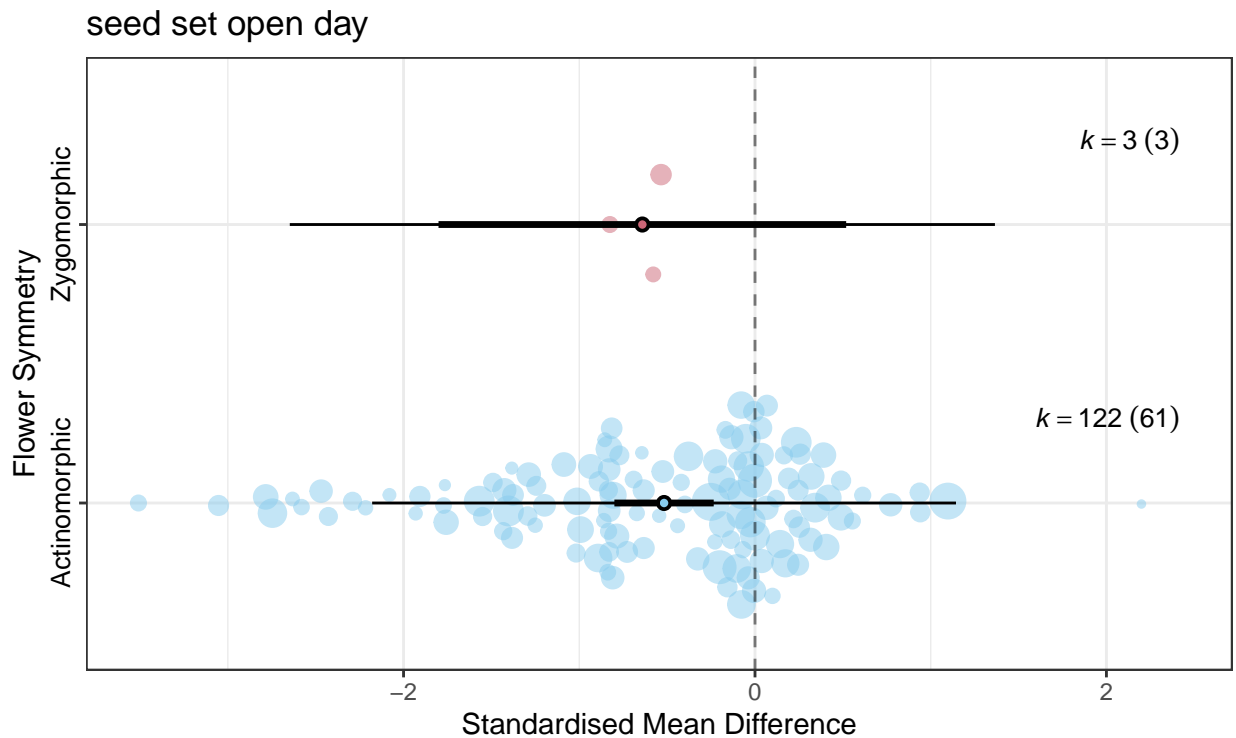

seed set open day
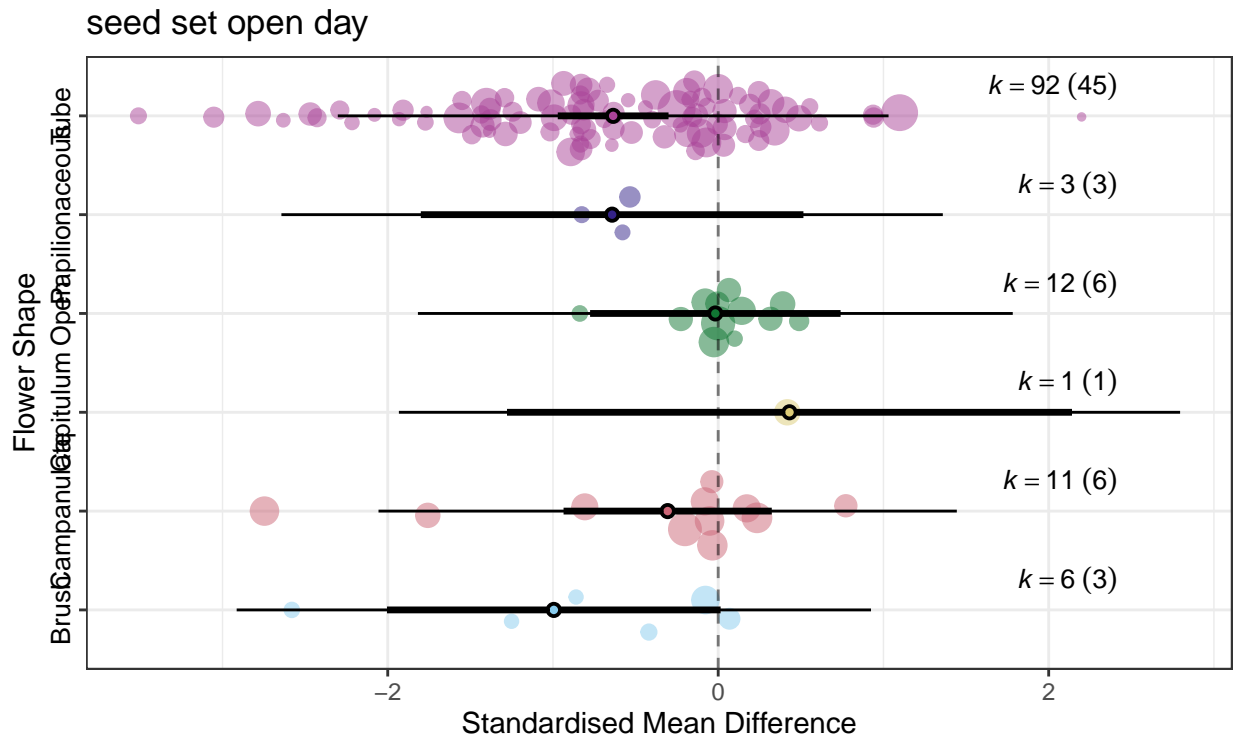
traits-31.pdf

```
##
## Multivariate Meta-Analysis Model (k = 125; method: REML)
##
## Variance Components:
##
##             estim    sqrt  nlvls  fixed         factor   R
## sigma^2.1  0.0000  0.0000     64     no        study_ID  no
## sigma^2.2  0.1457  0.3817    125     no        effect_ID  no
## sigma^2.3  0.0504  0.2244     61     no           phylo  yes
## sigma^2.4  0.5016  0.7083     61     no  accepted_name  no
```
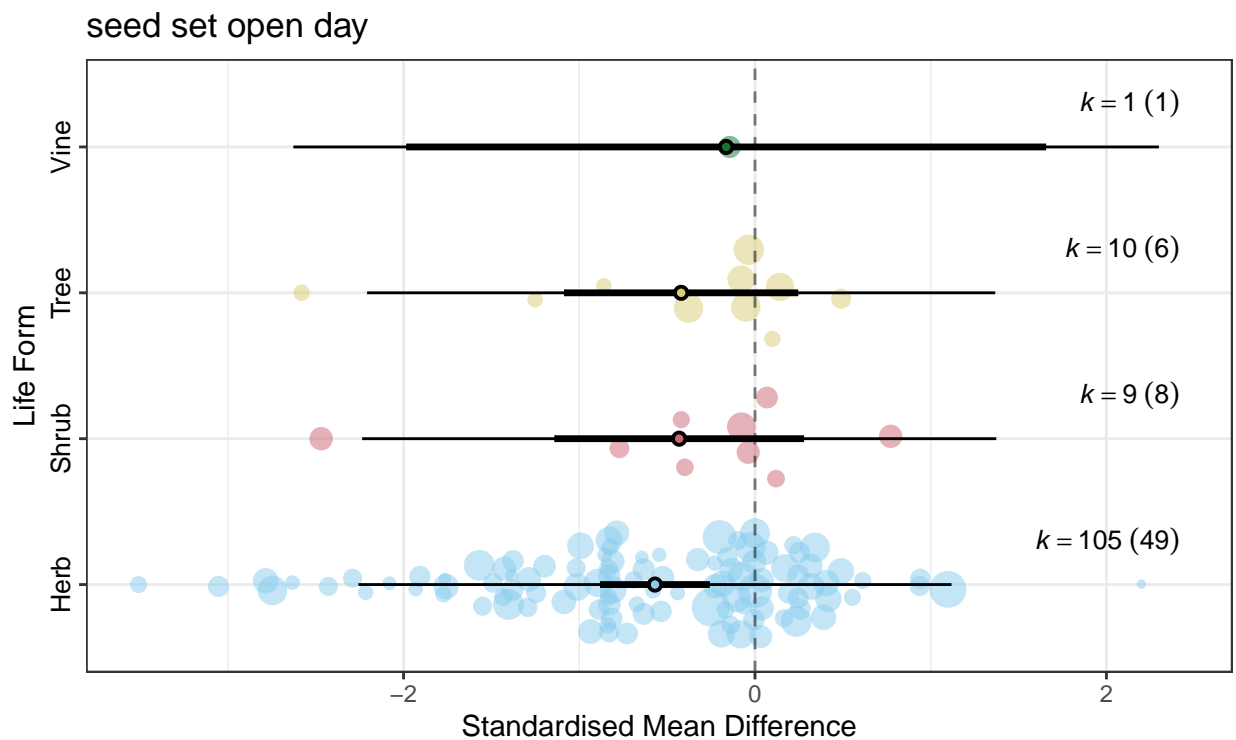
```
##
## Test for Residual Heterogeneity:
## QE(df = 123) = 940.4992, p-val < .0001
##
## Test of Moderators (coefficient 2):
## QM(df = 1) = 0.0422, p-val = 0.8372
##
## Model Results:
##
##                            estimate      se     zval     pval     ci.lb     ci.ub
## intrcpt                     -0.5174  0.1442  -3.5880   0.0003   -0.8001   -0.2348
## flower_symmetryzygomorphic  -0.1236  0.6013  -0.2055   0.8372   -1.3021    1.0549
##
## intrcpt                      ***
## flower_symmetryzygomorphic
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

seed set open day

traits-32.pdf

```
##
## Multivariate Meta-Analysis Model (k = 125; method: REML)
##
## Variance Components:
##
##             estim    sqrt  nlvls  fixed      factor    R
## sigma^2.1  0.0000  0.0000     64     no    study_ID   no
## sigma^2.2  0.1466  0.3828    125     no    effect_ID   no
## sigma^2.3  0.0448  0.2117     61     no       phylo  yes
```

```
## sigma^2.4  0.5246  0.7243      61      no  accepted_name    no
##
## Test for Residual Heterogeneity:
## QE(df = 121) = 932.5164, p-val < .0001
##
## Test of Moderators (coefficients 2:4):
## QM(df = 3) = 0.4045, p-val = 0.9393
##
## Model Results:
##
##                  estimate      se     zval    pval    ci.lb    ci.ub
## intrcpt           -0.5692  0.1595  -3.5687  0.0004  -0.8818  -0.2566  ***
## life_formshrub     0.1379  0.3847   0.3584  0.7200  -0.6161   0.8919
## life_formtree      0.1490  0.3658   0.4075  0.6836  -0.5678   0.8659
## life_formvine      0.4051  0.9368   0.4324  0.6654  -1.4310   2.2412
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
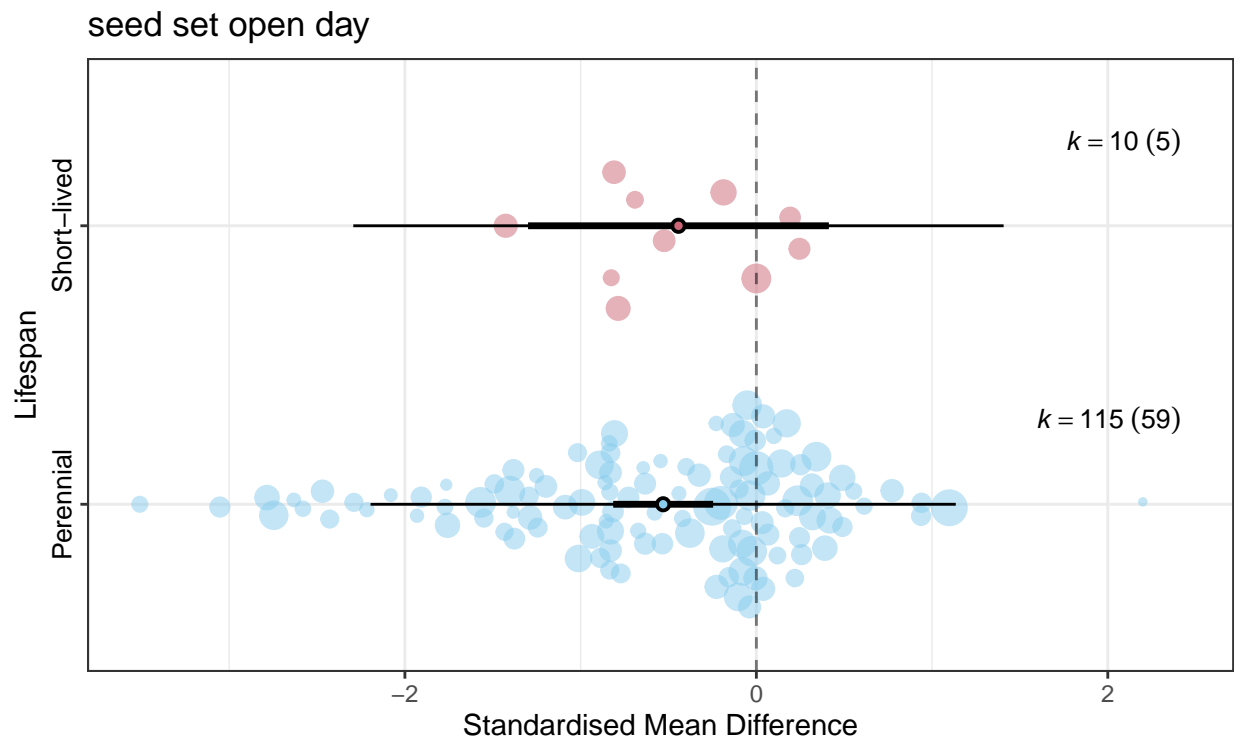

seed set open day

traits-33.pdf

```
##
## Multivariate Meta-Analysis Model (k = 125; method: REML)
##
## Variance Components:
##
##               estim    sqrt  nlvls  fixed        factor    R
## sigma^2.1  0.0000  0.0000     64     no       study_ID   no
## sigma^2.2  0.1449  0.3807    125     no       effect_ID   no
## sigma^2.3  0.0486  0.2205     61     no          phylo  yes
```
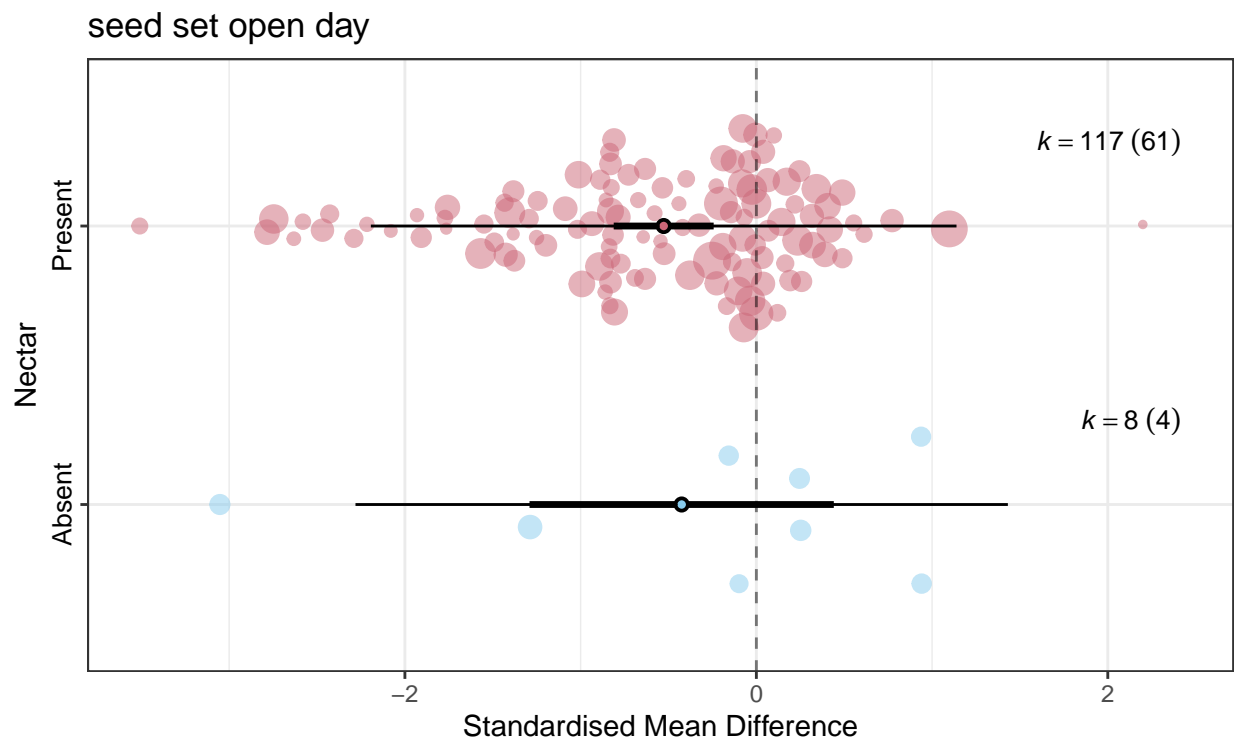
```
## sigma^2.4  0.5071  0.7121     61     no  accepted_name    no
##
## Test for Residual Heterogeneity:
## QE(df = 123) = 941.0240, p-val < .0001
##
## Test of Moderators (coefficient 2):
## QM(df = 1) = 0.0379, p-val = 0.8456
##
## Model Results:
##
##                    estimate      se     zval     pval    ci.lb    ci.ub
## intrcpt             -0.5303  0.1451  -3.6554   0.0003  -0.8146  -0.2460  ***
## lifespanshort-lived   0.0871  0.4470   0.1948   0.8456  -0.7890   0.9631
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```


seed set open day

traits-34.pdf

```
##
## Multivariate Meta-Analysis Model (k = 125; method: REML)
##
## Variance Components:
##
##              estim    sqrt  nlvls  fixed          factor    R
## sigma^2.1  0.0000  0.0000     64     no         study_ID   no
## sigma^2.2  0.1454  0.3813    125     no         effect_ID   no
## sigma^2.3  0.0533  0.2308     61     no            phylo  yes
## sigma^2.4  0.5031  0.7093     61     no    accepted_name   no
##
```

```
## Test for Residual Heterogeneity:
## QE(df = 123) = 940.8048, p-val < .0001
##
## Test of Moderators (coefficient 2):
## QM(df = 1) = 0.0540, p-val = 0.8162
##
## Model Results:
##
##                estimate       se      zval     pval     ci.lb    ci.ub
## intrcpt         -0.4250   0.4417   -0.9620   0.3360   -1.2908   0.4408
## nectarpresent   -0.1023   0.4404   -0.2324   0.8162   -0.9655   0.7608
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
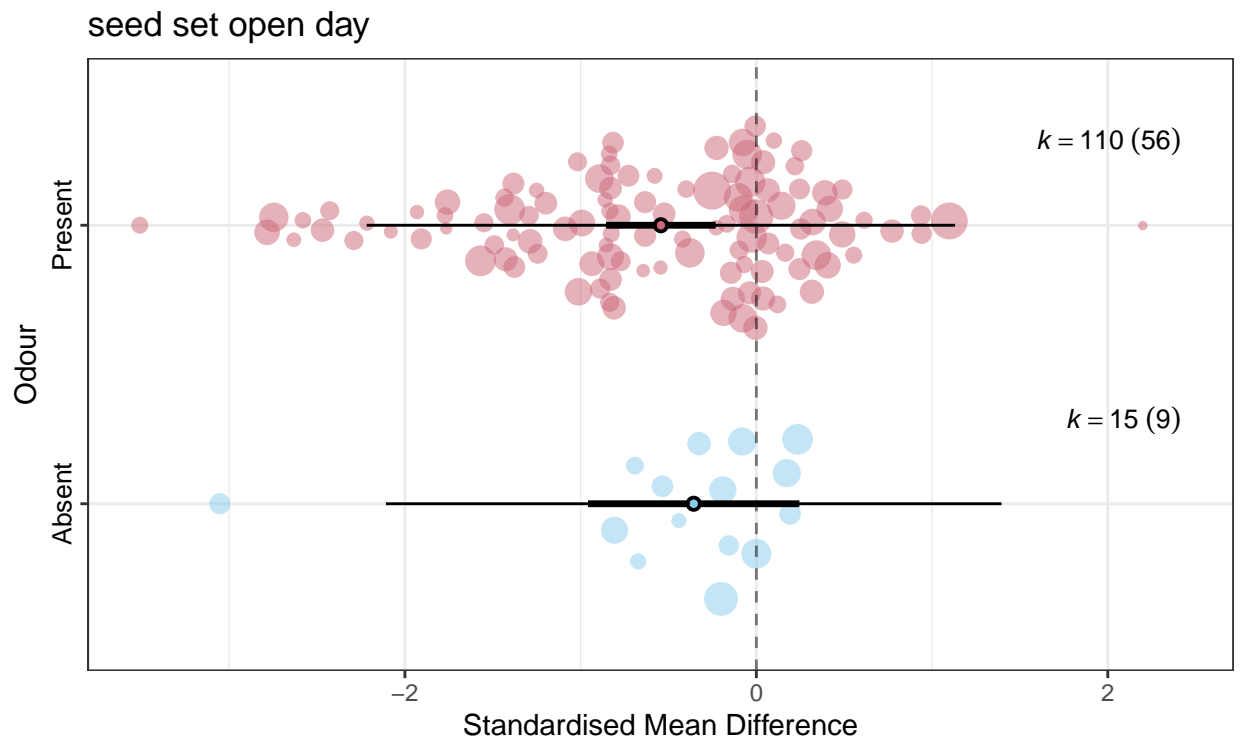

seed set open day

traits-35.pdf

```
##
## Multivariate Meta-Analysis Model (k = 125; method: REML)
##
## Variance Components:
##
##              estim     sqrt   nlvls   fixed          factor    R
## sigma^2.1   0.0000   0.0000      64      no        study_ID   no
## sigma^2.2   0.1452   0.3810     125      no       effect_ID   no
## sigma^2.3   0.0726   0.2695      61      no           phylo  yes
## sigma^2.4   0.4866   0.6975      61      no   accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 123) = 934.1544, p-val < .0001
```

```
## 
## Test of Moderators (coefficient 2):
## QM(df = 1) = 0.3553, p-val = 0.5511
## 
## Model Results:
## 
##               estimate      se     zval    pval    ci.lb   ci.ub
## intrcpt        -0.3564  0.3068  -1.1619  0.2453  -0.9577  0.2448
## odourpresent   -0.1869  0.3135  -0.5961  0.5511  -0.8013  0.4276
## 
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
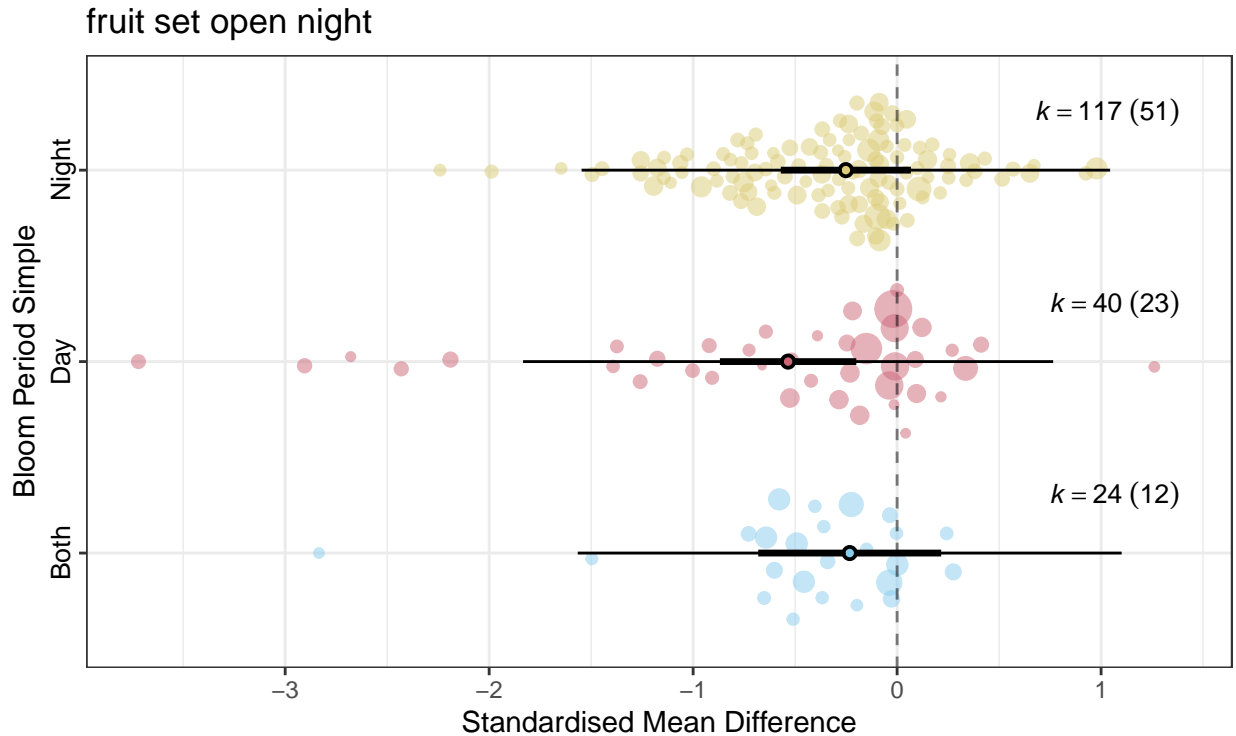

seed set open day

traits-36.pdf

```
## 
## Multivariate Meta-Analysis Model (k = 181; method: REML)
## 
## Variance Components:
## 
##             estim    sqrt  nlvls  fixed          factor    R
## sigma^2.1  0.0710  0.2664     83     no        study_ID   no
## sigma^2.2  0.0624  0.2497    181     no        effect_ID   no
## sigma^2.3  0.1107  0.3327     83     no           phylo  yes
## sigma^2.4  0.1664  0.4079     83     no   accepted_name   no
## 
## Test for Residual Heterogeneity:
## QE(df = 178) = 1484.5188, p-val < .0001
## 
## Test of Moderators (coefficients 2:3):
```

```
## QM(df = 2) = 3.1097, p-val = 0.2112
##
## Model Results:
##
##                            estimate      se     zval    pval   ci.lb   ci.ub
## intrcpt                     -0.2325  0.2288  -1.0160  0.3096  -0.6809  0.2160
## bloom_period_simpleday      -0.3019  0.2373  -1.2722  0.2033  -0.7670  0.1632
## bloom_period_simplenight    -0.0188  0.2290  -0.0822  0.9345  -0.4677  0.4300
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
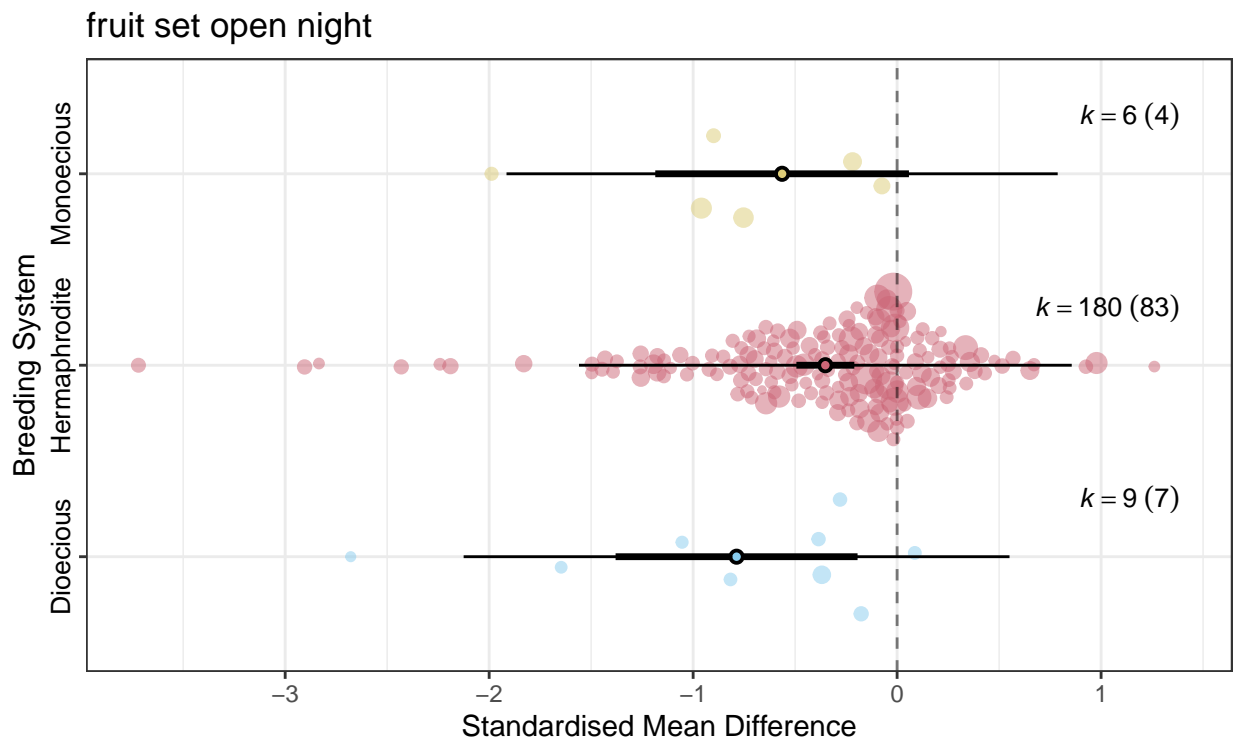
fruit set open night

traits-37.pdf

```
##
## Multivariate Meta-Analysis Model (k = 195; method: REML)
##
## Variance Components:
##
##             estim    sqrt  nlvls  fixed         factor    R
## sigma^2.1  0.1358  0.3685     93     no       study_ID   no
## sigma^2.2  0.0623  0.2497    195     no       effect_ID   no
## sigma^2.3  0.0000  0.0000     94     no          phylo  yes
## sigma^2.4  0.1764  0.4200     94     no  accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 192) = 1595.5584, p-val < .0001
##
## Test of Moderators (coefficients 2:3):
## QM(df = 2) = 2.3094, p-val = 0.3152
```

```
## 
## Model Results:
## 
##                              estimate      se     zval    pval     ci.lb
## intrcpt                       -0.7870  0.3026  -2.6005  0.0093   -1.3801
## breeding_systemhermaphrodite   0.4352  0.3102   1.4031  0.1606   -0.1727
## breeding_systemmonoecious      0.2232  0.4385   0.5090  0.6107   -0.6362
##                                 ci.ub
## intrcpt                       -0.1938  **
## breeding_systemhermaphrodite   1.0431
## breeding_systemmonoecious      1.0825
## 
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
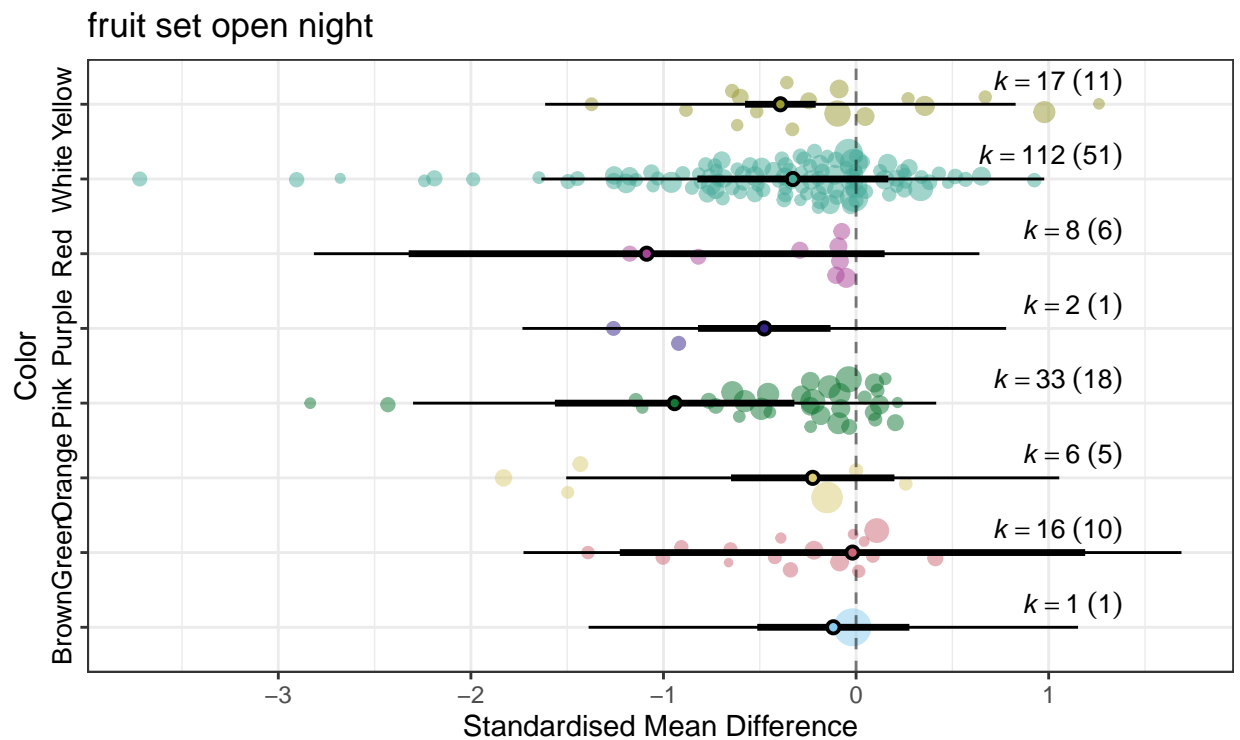
fruit set open night

traits-38.pdf

```
## 
## Multivariate Meta-Analysis Model (k = 195; method: REML)
## 
## Variance Components:
## 
##             estim    sqrt  nlvls  fixed          factor    R
## sigma^2.1  0.1250  0.3536     93     no        study_ID   no
## sigma^2.2  0.0616  0.2482    195     no       effect_ID   no
## sigma^2.3  0.0000  0.0001     94     no           phylo  yes
## sigma^2.4  0.1930  0.4394     94     no  accepted_name   no
## 
## Test for Residual Heterogeneity:
## QE(df = 187) = 1539.1085, p-val < .0001
```
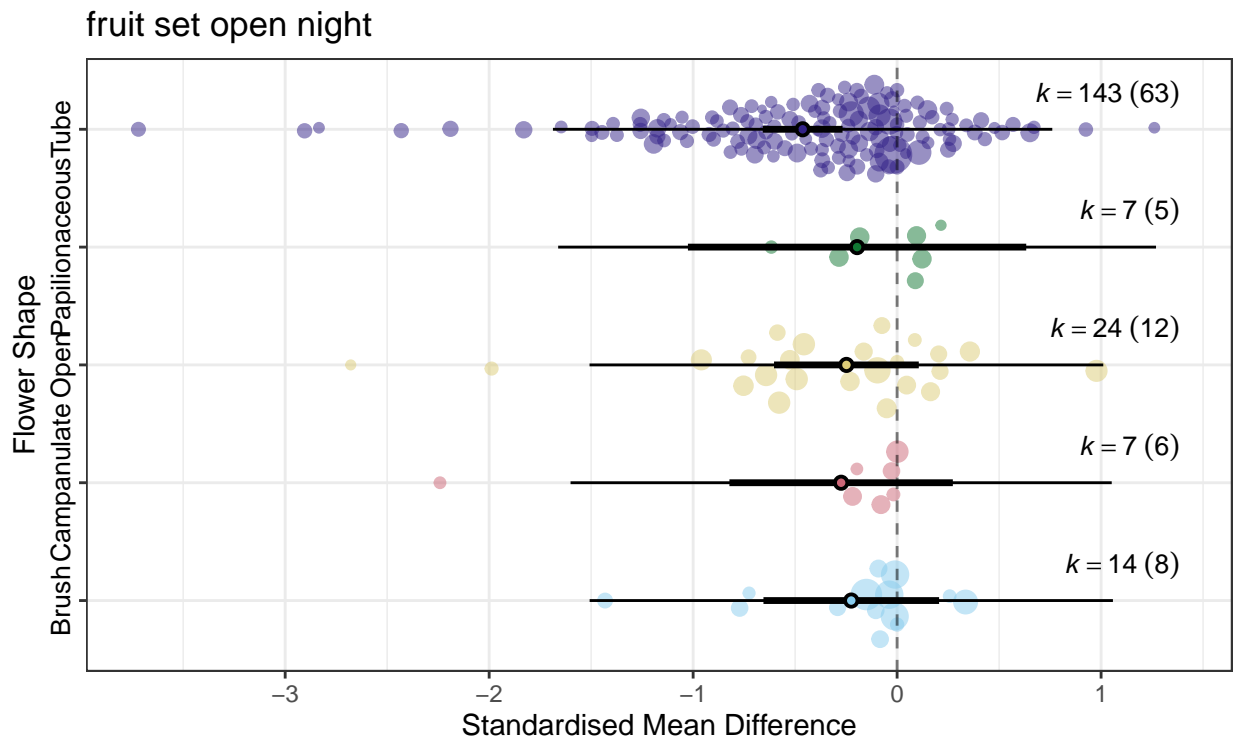
```
## 
## Test of Moderators (coefficients 2:8):
## QM(df = 7) = 7.3596, p-val = 0.3924
## 
## Model Results:
## 
##             estimate      se     zval    pval    ci.lb    ci.ub
## intrcpt      -0.1182  0.2015  -0.5866  0.5575  -0.5132   0.2767
## colorbrown    0.0996  0.6485   0.1536  0.8779  -1.1715   1.3707
## colorgreen   -0.1069  0.2914  -0.3669  0.7137  -0.6780   0.4642
## colororange  -0.8239  0.3729  -2.2098  0.0271  -1.5547  -0.0931  *
## colorpink    -0.3584  0.2670  -1.3423  0.1795  -0.8818   0.1649
## colorpurple  -0.9693  0.6619  -1.4645  0.1431  -2.2665   0.3279
## colorred     -0.2102  0.3231  -0.6507  0.5152  -0.8435   0.4230
## colorwhite   -0.2748  0.2200  -1.2490  0.2117  -0.7061   0.1564
## 
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```


fruit set open night

traits-39.pdf

Precision (1/SE) ○ 10 ○ 20 ○ 30 ○ 40 ○ 50

```
## 
## Multivariate Meta-Analysis Model (k = 195; method: REML)
## 
## Variance Components:
## 
##            estim    sqrt  nlvls  fixed      factor    R
## sigma^2.1  0.1218  0.3490     93     no    study_ID   no
## sigma^2.2  0.0635  0.2520    195     no    effect_ID  no
## sigma^2.3  0.0117  0.1082     94     no       phylo  yes
```

```
## sigma^2.4  0.1830  0.4278      94      no  accepted_name    no
##
## Test for Residual Heterogeneity:
## QE(df = 190) = 1648.9390, p-val < .0001
##
## Test of Moderators (coefficients 2:5):
## QM(df = 4) = 2.1214, p-val = 0.7134
##
## Model Results:
##
##                            estimate      se     zval    pval    ci.lb   ci.ub
## intrcpt                     -0.2247  0.2197  -1.0228  0.3064  -0.6553  0.2059
## flower_shapecampanulate     -0.0497  0.3527  -0.1410  0.8879  -0.7410  0.6416
## flower_shapeopen            -0.0238  0.2761  -0.0864  0.9312  -0.5649  0.5172
## flower_shapepapilionaceous   0.0285  0.4766   0.0598  0.9523  -0.9057  0.9627
## flower_shapetube            -0.2385  0.2382  -1.0014  0.3167  -0.7053  0.2283
##
## intrcpt
## flower_shapecampanulate
## flower_shapeopen
## flower_shapepapilionaceous
## flower_shapetube
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
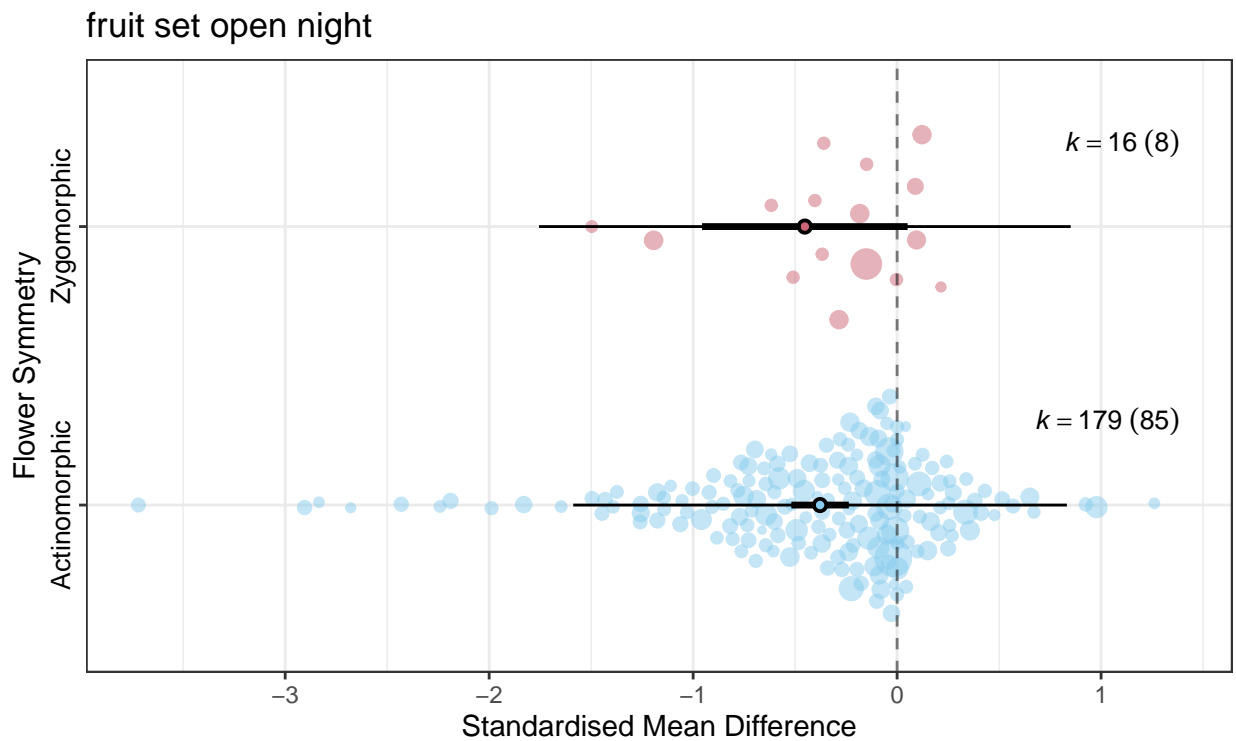
fruit set open night

```
##
## Multivariate Meta-Analysis Model (k = 195; method: REML)
```

```
##
## Variance Components:
##
##             estim    sqrt  nlvls  fixed         factor    R
## sigma^2.1  0.1379  0.3714     93     no        study_ID   no
## sigma^2.2  0.0619  0.2489    195     no        effect_ID   no
## sigma^2.3  0.0000  0.0000     94     no           phylo  yes
## sigma^2.4  0.1762  0.4197     94     no  accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 193) = 1694.5303, p-val < .0001
##
## Test of Moderators (coefficient 2):
## QM(df = 1) = 0.0782, p-val = 0.7798
##
## Model Results:
##
##                               estimate      se     zval     pval    ci.lb    ci.ub
## intrcpt                        -0.3777  0.0718  -5.2589   <.0001  -0.5184  -0.2369
## flower_symmetryzygomorphic     -0.0746  0.2669  -0.2796   0.7798  -0.5978   0.4485
##
## intrcpt                       ***
## flower_symmetryzygomorphic
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
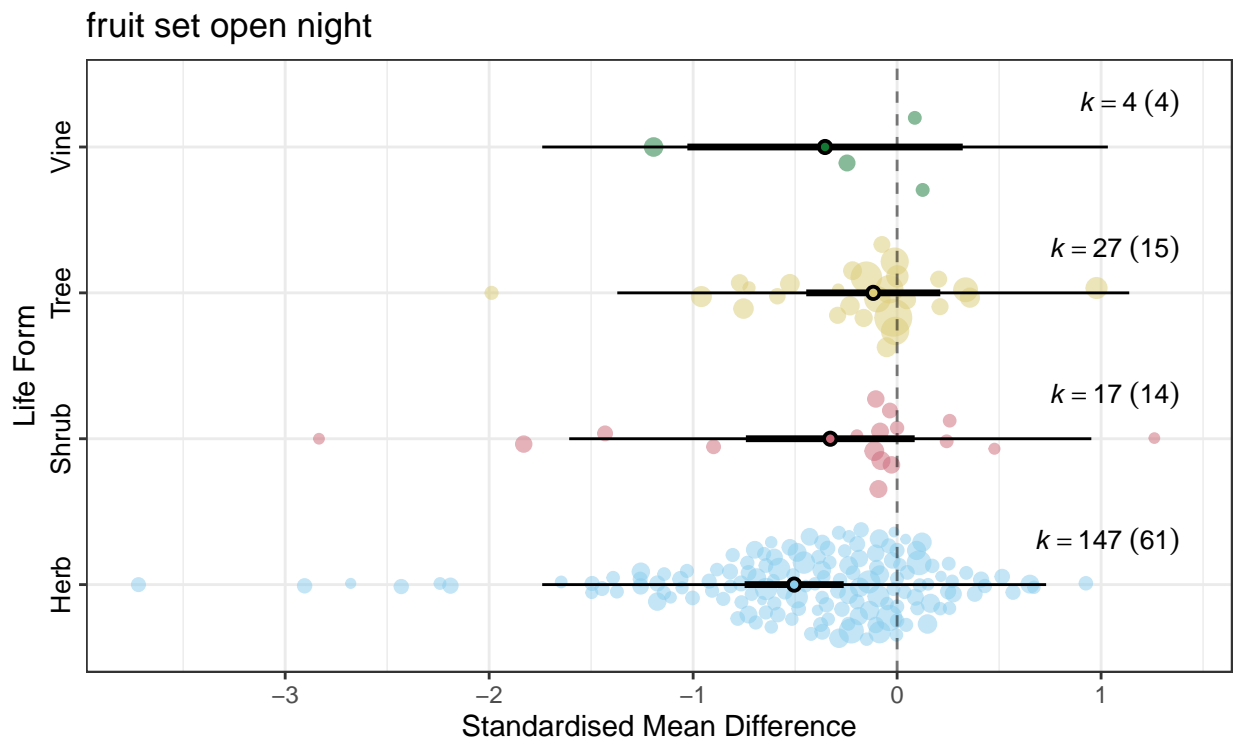

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traits-41.pdf

```
##
```

```
## Multivariate Meta-Analysis Model (k = 195; method: REML)
##
## Variance Components:
##
##              estim    sqrt  nlvls  fixed          factor    R
## sigma^2.1  0.1047  0.3235     93     no         study_ID   no
## sigma^2.2  0.0653  0.2555    195     no        effect_ID   no
## sigma^2.3  0.0363  0.1906     94     no            phylo  yes
## sigma^2.4  0.1756  0.4190     94     no    accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 191) = 1481.6811, p-val < .0001
##
## Test of Moderators (coefficients 2:4):
## QM(df = 3) = 3.8563, p-val = 0.2774
##
## Model Results:
##
##                 estimate      se     zval    pval    ci.lb    ci.ub
## intrcpt          -0.5047  0.1239  -4.0729  <.0001  -0.7476  -0.2618  ***
## life_formshrub    0.1771  0.2315   0.7649  0.4444  -0.2767   0.6309
## life_formtree     0.3878  0.1982   1.9568  0.0504  -0.0006   0.7762    .
## life_formvine     0.1514  0.3582   0.4227  0.6725  -0.5507   0.8536
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
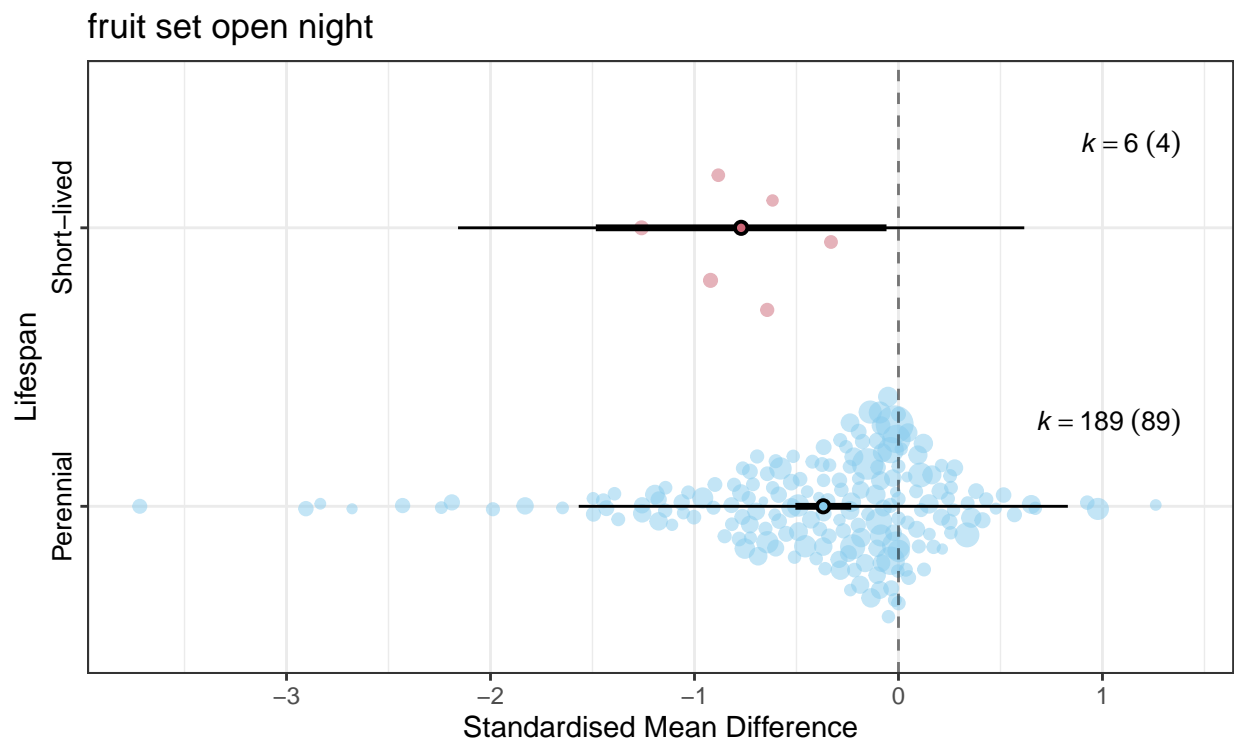
fruit set open night

traits-42.pdf

```
##
```
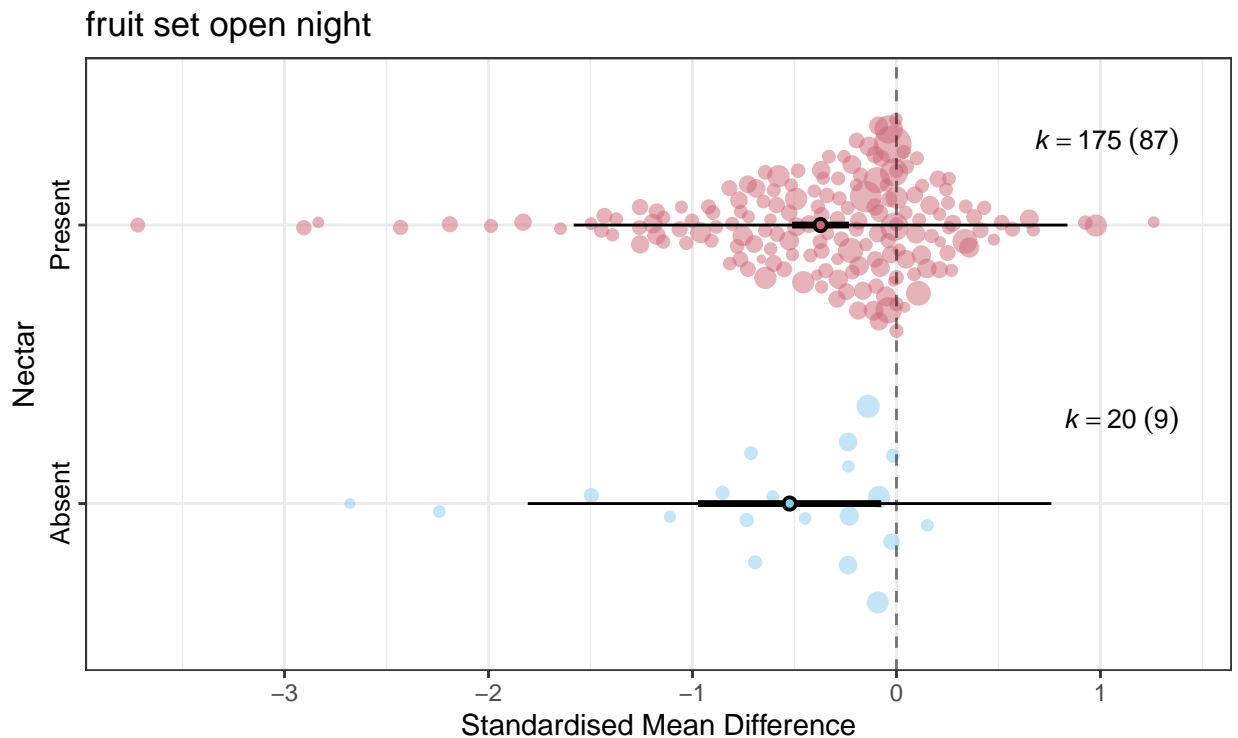
```
## Multivariate Meta-Analysis Model (k = 195; method: REML)
##
## Variance Components:
##
##             estim   sqrt  nlvls  fixed          factor    R
## sigma^2.1  0.1367  0.3697     93     no        study_ID   no
## sigma^2.2  0.0624  0.2497    195     no       effect_ID   no
## sigma^2.3  0.0000  0.0001     94     no           phylo  yes
## sigma^2.4  0.1702  0.4126     94     no   accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 193) = 1677.1891, p-val < .0001
##
## Test of Moderators (coefficient 2):
## QM(df = 1) = 1.1828, p-val = 0.2768
##
## Model Results:
##
##                      estimate      se     zval    pval    ci.lb    ci.ub
## intrcpt               -0.3686  0.0698  -5.2784  <.0001  -0.5055  -0.2317  ***
## lifespanshort-lived   -0.4026  0.3702  -1.0876  0.2768  -1.1282   0.3230
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```


fruit set open night

traits-43.pdf

```
##
## Multivariate Meta-Analysis Model (k = 195; method: REML)
##
```

```
## Variance Components:
##
##              estim    sqrt  nlvls  fixed         factor    R
## sigma^2.1  0.1225  0.3499     93     no       study_ID   no
## sigma^2.2  0.0635  0.2520    195     no      effect_ID   no
## sigma^2.3  0.0000  0.0000     94     no          phylo  yes
## sigma^2.4  0.1903  0.4362     94     no  accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 193) = 1694.9802, p-val < .0001
##
## Test of Moderators (coefficient 2):
## QM(df = 1) = 0.4136, p-val = 0.5202
##
## Model Results:
##
##               estimate       se     zval    pval    ci.lb    ci.ub
## intrcpt        -0.5239   0.2293  -2.2849  0.0223  -0.9732  -0.0745  *
## nectarpresent   0.1517   0.2359   0.6431  0.5202  -0.3107   0.6142
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```


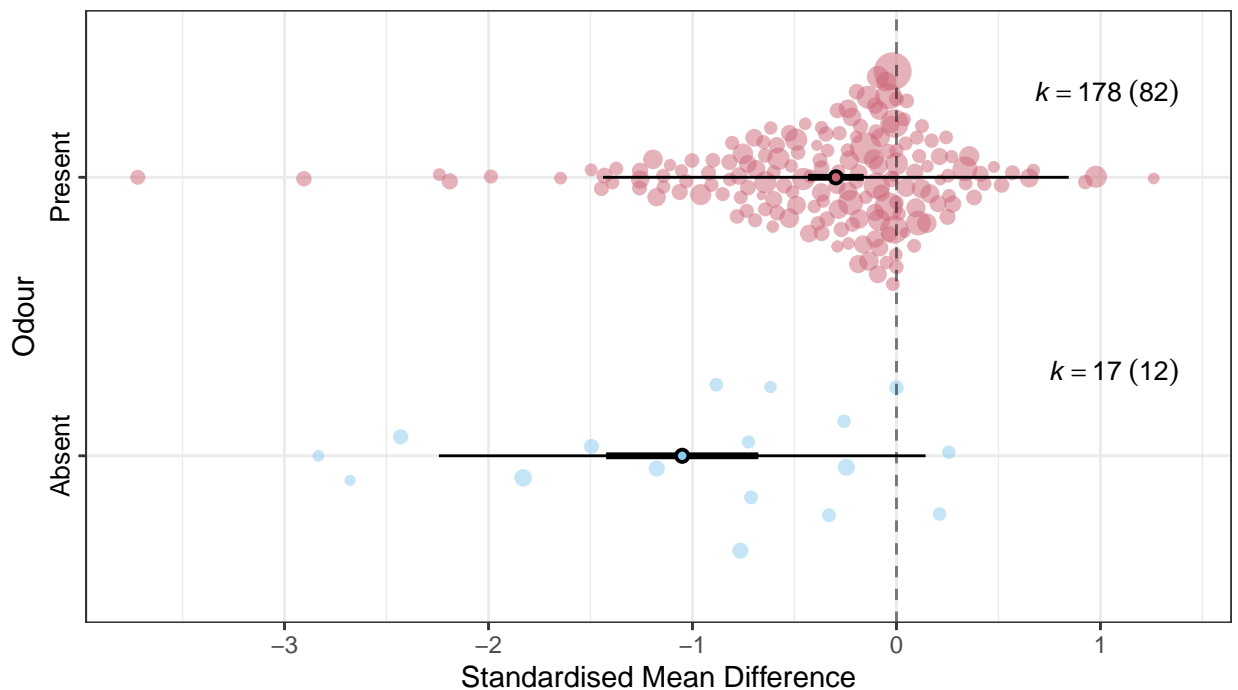fruit set open night

traits-44.pdf

```
##
## Multivariate Meta-Analysis Model (k = 195; method: REML)
##
## Variance Components:
##
```

```
##              estim    sqrt  nlvls  fixed          factor     R
## sigma^2.1  0.1405  0.3748     93     no        study_ID    no
## sigma^2.2  0.0581  0.2411    195     no        effect_ID    no
## sigma^2.3  0.0000  0.0000     94     no           phylo   yes
## sigma^2.4  0.1357  0.3684     94     no   accepted_name    no
##
## Test for Residual Heterogeneity:
## QE(df = 193) = 1576.5178, p-val < .0001
##
## Test of Moderators (coefficient 2):
## QM(df = 1) = 14.0198, p-val = 0.0002
##
## Model Results:
##
##              estimate      se     zval     pval    ci.lb     ci.ub
## intrcpt       -1.0504  0.1904  -5.5178   <.0001  -1.4234   -0.6773   ***
## odourpresent   0.7533  0.2012   3.7443   0.0002   0.3590    1.1477   ***
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```


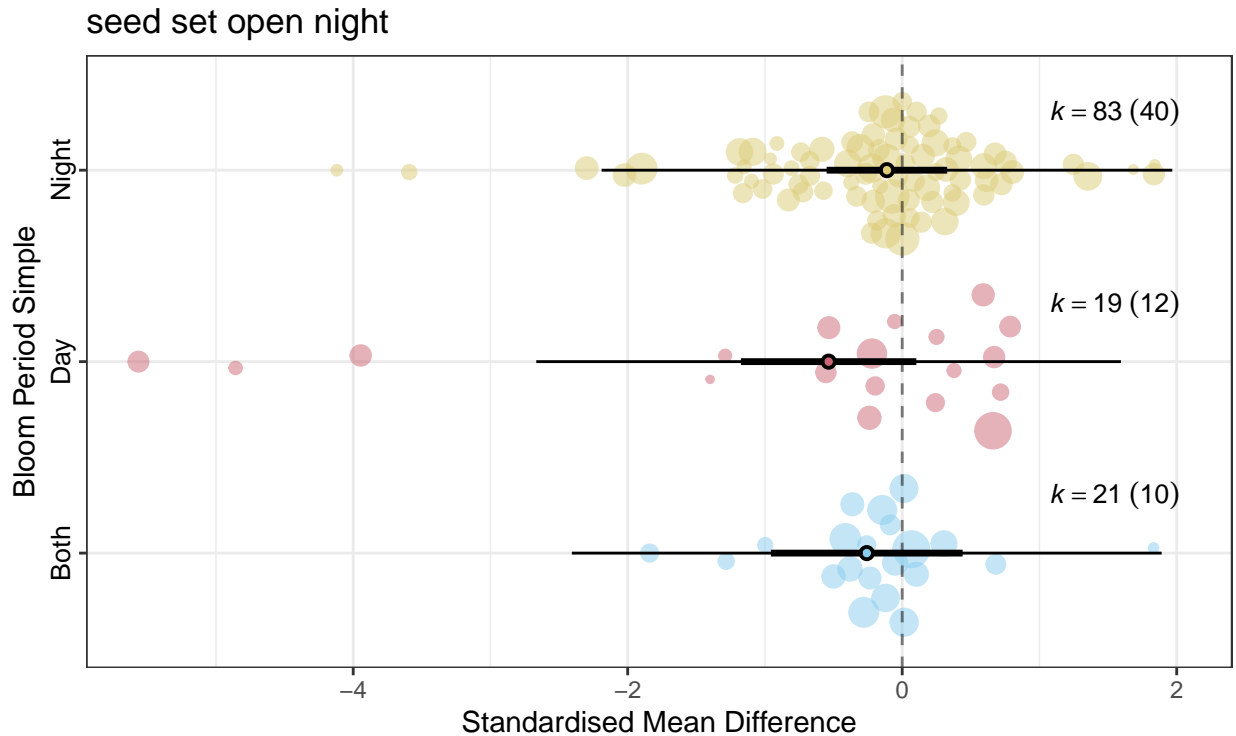fruit set open night

traits-45.pdf

```
##
## Multivariate Meta-Analysis Model (k = 123; method: REML)
##
## Variance Components:
##
##              estim    sqrt  nlvls  fixed       factor    R
## sigma^2.1  0.0493  0.2221     61     no     study_ID   no
```

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```
## sigma^2.2  0.1177  0.3431     123     no       effect_ID   no
## sigma^2.3  0.0838  0.2895      59     no           phylo  yes
## sigma^2.4  0.8238  0.9077      59     no   accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 120) = 861.2056, p-val < .0001
##
## Test of Moderators (coefficients 2:3):
## QM(df = 2) = 1.3034, p-val = 0.5212
##
## Model Results:
##
##                           estimate      se     zval    pval    ci.lb   ci.ub
## intrcpt                    -0.2582  0.3564  -0.7245  0.4688  -0.9567  0.4403
## bloom_period_simpleday     -0.2779  0.4616  -0.6021  0.5471  -1.1825  0.6267
## bloom_period_simplenight    0.1468  0.3877   0.3786  0.7050  -0.6132  0.9068
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
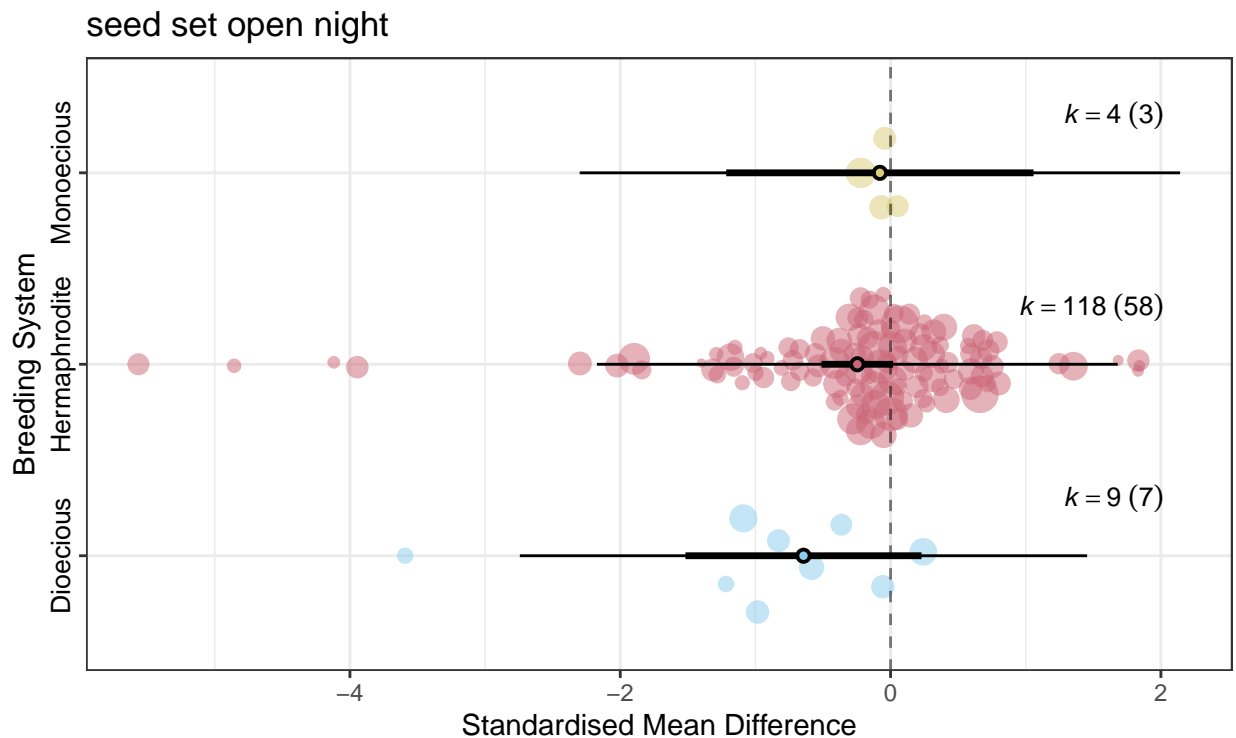
seed set open night

traits-46.pdf

```
##
## Multivariate Meta-Analysis Model (k = 131; method: REML)
##
## Variance Components:
##
##             estim    sqrt  nlvls  fixed        factor    R
## sigma^2.1  0.0567  0.2382     68     no      study_ID   no
## sigma^2.2  0.1152  0.3394    131     no      effect_ID   no
```

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```
## sigma^2.3  0.0000  0.0001     66     no            phylo  yes
## sigma^2.4  0.7759  0.8808     66     no  accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 128) = 863.1431, p-val < .0001
##
## Test of Moderators (coefficients 2:3):
## QM(df = 2) = 0.8461, p-val = 0.6550
##
## Model Results:
##
##                             estimate      se     zval    pval    ci.lb
## intrcpt                      -0.6444  0.4455  -1.4466  0.1480  -1.5176
## breeding_systemhermaphrodite  0.3984  0.4656   0.8557  0.3922  -0.5141
## breeding_systemmonoecious     0.5653  0.7314   0.7730  0.4395  -0.8681
##                              ci.ub
## intrcpt                     0.2287
## breeding_systemhermaphrodite 1.3108
## breeding_systemmonoecious    1.9988
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
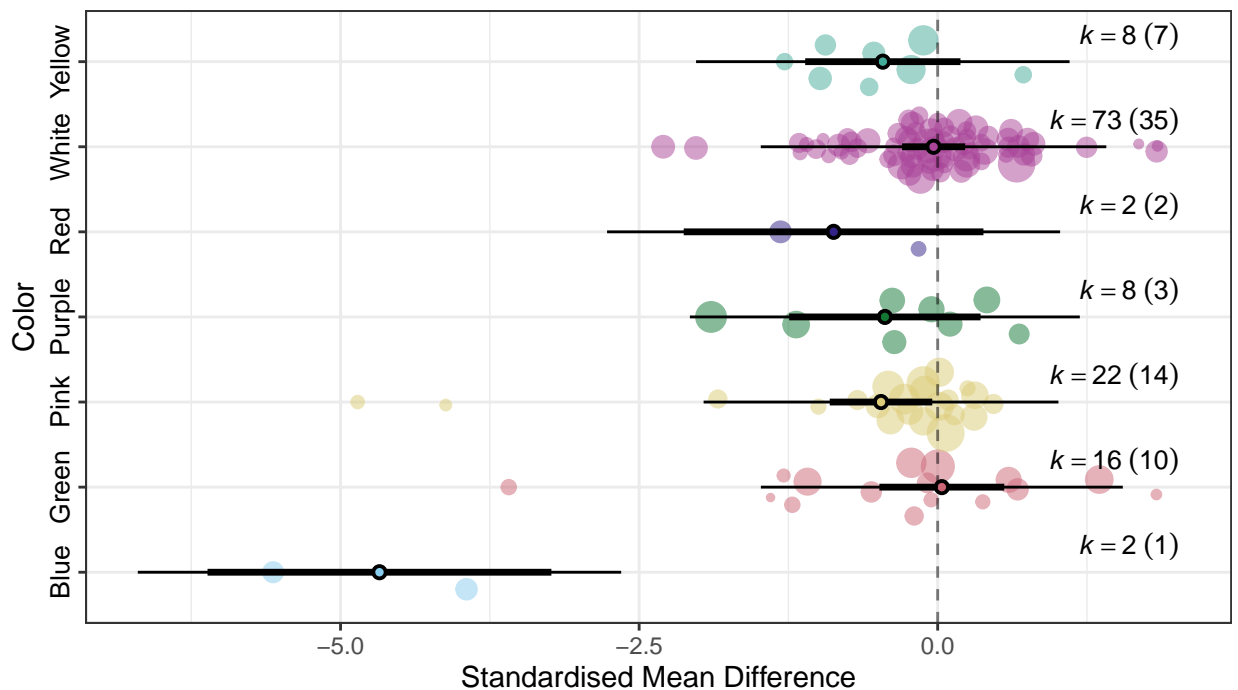

seed set open night

traits-47.pdf

```
##
## Multivariate Meta-Analysis Model (k = 131; method: REML)
##
## Variance Components:
##
```

```
##                estim    sqrt   nlvls  fixed        factor     R
## sigma^2.1     0.0236   0.1537     68     no       study_ID    no
## sigma^2.2     0.1250   0.3536    131     no      effect_ID    no
## sigma^2.3     0.0000   0.0000     66     no          phylo   yes
## sigma^2.4     0.3779   0.6147     66     no  accepted_name    no
##
## Test for Residual Heterogeneity:
## QE(df = 124) = 538.0494, p-val < .0001
##
## Test of Moderators (coefficients 2:7):
## QM(df = 6) = 42.6448, p-val < .0001
##
## Model Results:
##
##
##              estimate       se      zval     pval     ci.lb     ci.ub
## intrcpt       -4.6742   0.7345   -6.3635   <.0001   -6.1139   -3.2346   ***
## colorgreen     4.7091   0.7815    6.0257   <.0001    3.1774    6.2408   ***
## colorpink      4.1998   0.7665    5.4793   <.0001    2.6975    5.7020   ***
## colorpurple    4.2320   0.8314    5.0903   <.0001    2.6025    5.8615   ***
## colorred       3.8026   0.9744    3.9025   <.0001    1.8928    5.7124   ***
## colorwhite     4.6396   0.7456    6.2222   <.0001    3.1781    6.1010   ***
## coloryellow    4.2149   0.8059    5.2297   <.0001    2.6352    5.7945   ***
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```


seed set open night

traits-48.pdf

```
##
## Multivariate Meta-Analysis Model (k = 131; method: REML)
```

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```
##
## Variance Components:
##
##              estim    sqrt   nlvls  fixed        factor    R
## sigma^2.1  0.0164  0.1282      68     no       study_ID   no
## sigma^2.2  0.1199  0.3462     131     no      effect_ID   no
## sigma^2.3  0.0000  0.0001      66     no          phylo  yes
## sigma^2.4  0.7339  0.8567      66     no  accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 125) = 752.4157, p-val < .0001
##
## Test of Moderators (coefficients 2:6):
## QM(df = 5) = 10.4621, p-val = 0.0632
##
## Model Results:
##
##                          estimate      se     zval    pval    ci.lb    ci.ub
## intrcpt                   -0.1888  0.4961  -0.3805  0.7036  -1.1611   0.7836
## flower_shapecampanulate   -0.7729  0.6012  -1.2856  0.1986  -1.9512   0.4054
## flower_shapecapitulum      0.4332  1.0878   0.3983  0.6904  -1.6989   2.5654
## flower_shapeopen           0.1487  0.6571   0.2263  0.8209  -1.1391   1.4366
## flower_shapepapilionaceous -1.5759  0.8487  -1.8569  0.0633  -3.2392   0.0875
## flower_shapetube           0.0650  0.5170   0.1258  0.8999  -0.9483   1.0784
##
## intrcpt
## flower_shapecampanulate
## flower_shapecapitulum
## flower_shapeopen
## flower_shapepapilionaceous  .
## flower_shapetube
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
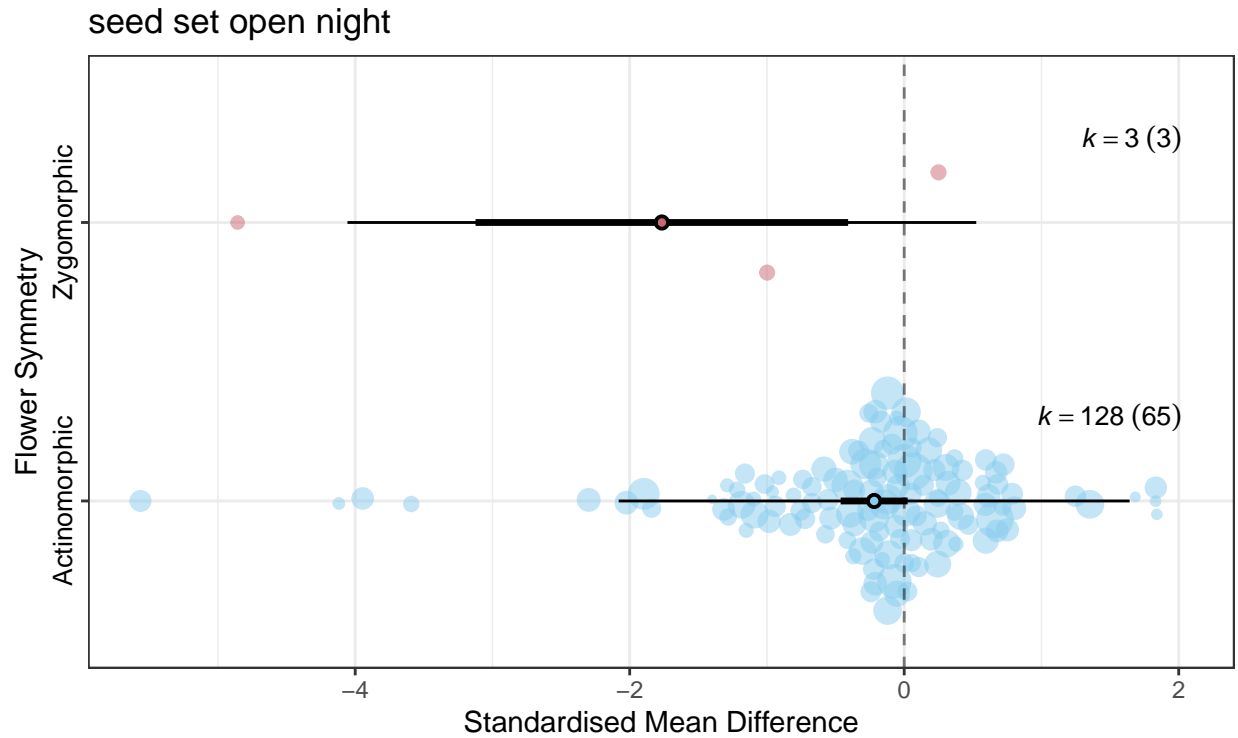
seed set open night

Flower Shape (vertical axis labels): Brush, Campanulate, Capitulum Open, Open, Papilionaceous, Tube

k = 100 (49)
k = 3 (3)
k = 10 (6)
k = 1 (1)
k = 11 (6)
k = 6 (3)

Standardised Mean Difference

Precision (1/SE) ○ 2 ○ 4 ○ 6 ○ 8

traits-49.pdf

```
##
## Multivariate Meta-Analysis Model (k = 131; method: REML)
##
## Variance Components:
##
##              estim    sqrt  nlvls  fixed         factor    R
## sigma^2.1  0.0607  0.2463     68     no       study_ID   no
## sigma^2.2  0.1113  0.3336    131     no      effect_ID   no
## sigma^2.3  0.0000  0.0001     66     no          phylo  yes
## sigma^2.4  0.7145  0.8453     66     no  accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 129) = 869.6598, p-val < .0001
##
## Test of Moderators (coefficient 2):
## QM(df = 1) = 4.8323, p-val = 0.0279
##
## Model Results:
##
##                            estimate      se     zval    pval    ci.lb    ci.ub
## intrcpt                     -0.2190  0.1245  -1.7588  0.0786  -0.4631   0.0251
## flower_symmetryzygomorphic  -1.5467  0.7036  -2.1983  0.0279  -2.9258  -0.1677
##
## intrcpt                     .
## flower_symmetryzygomorphic  *
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

seed set open night
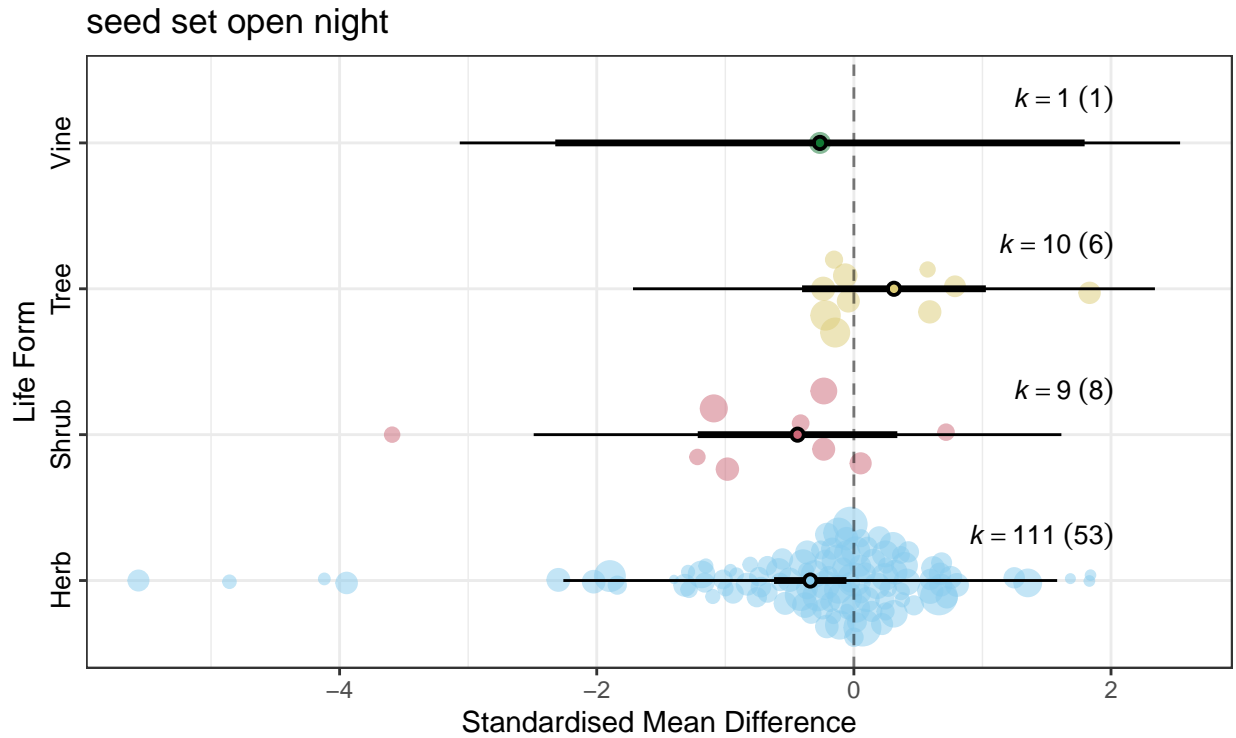
Flower Symmetry

Standardised Mean Difference

Precision (1/SE) ○ 2 ○ 4 ○ 6 ○ 8

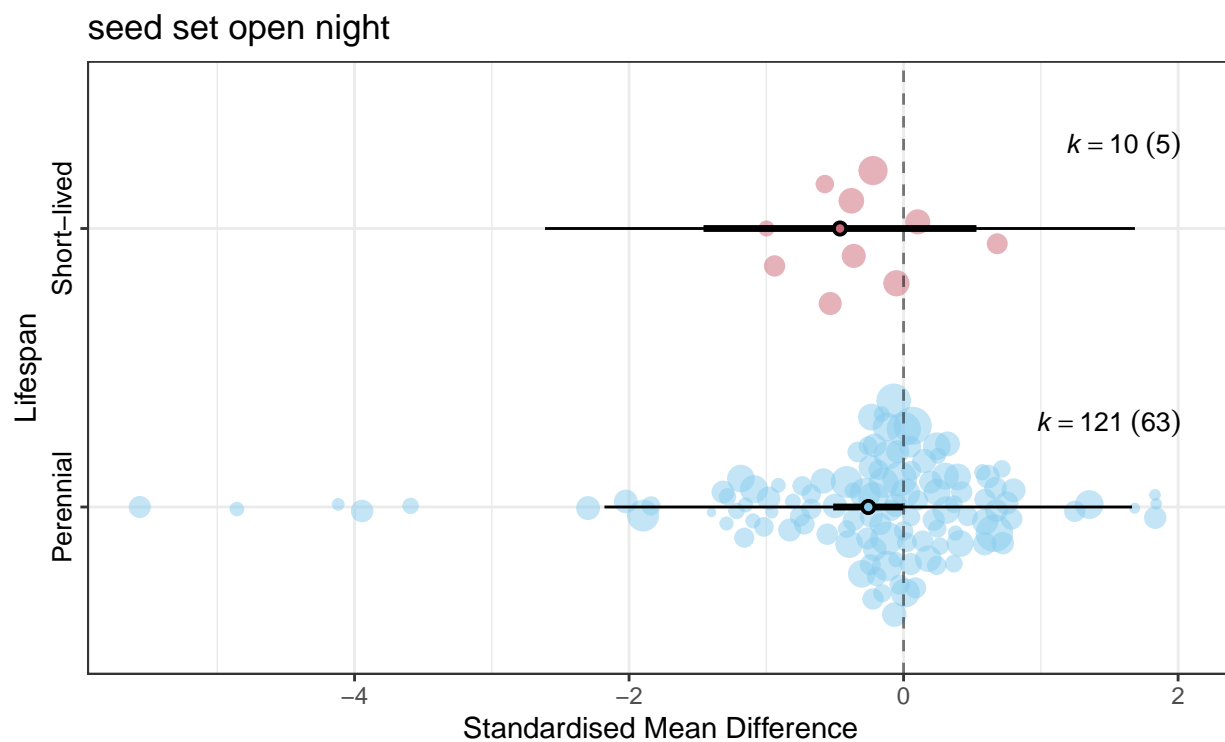traits-50.pdf

```
##
## Multivariate Meta-Analysis Model (k = 131; method: REML)
##
## Variance Components:
##
##            estim    sqrt   nlvls  fixed         factor    R
## sigma^2.1  0.0463  0.2152     68     no        study_ID   no
## sigma^2.2  0.1146  0.3385    131     no       effect_ID   no
## sigma^2.3  0.0000  0.0001     66     no           phylo  yes
## sigma^2.4  0.7787  0.8824     66     no   accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 127) = 859.0307, p-val < .0001
##
## Test of Moderators (coefficients 2:4):
## QM(df = 3) = 2.9582, p-val = 0.3981
##
## Model Results:
##
##                estimate      se     zval    pval    ci.lb    ci.ub
## intrcpt         -0.3394  0.1436  -2.3637  0.0181  -0.6208  -0.0580  *
## life_formshrub  -0.0989  0.4212  -0.2348  0.8144  -0.9244   0.7266
## life_formtree    0.6511  0.3920   1.6612  0.0967  -0.1171   1.4194  .
## life_formvine    0.0754  1.0601   0.0711  0.9433  -2.0024   2.1532
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

seed set open night
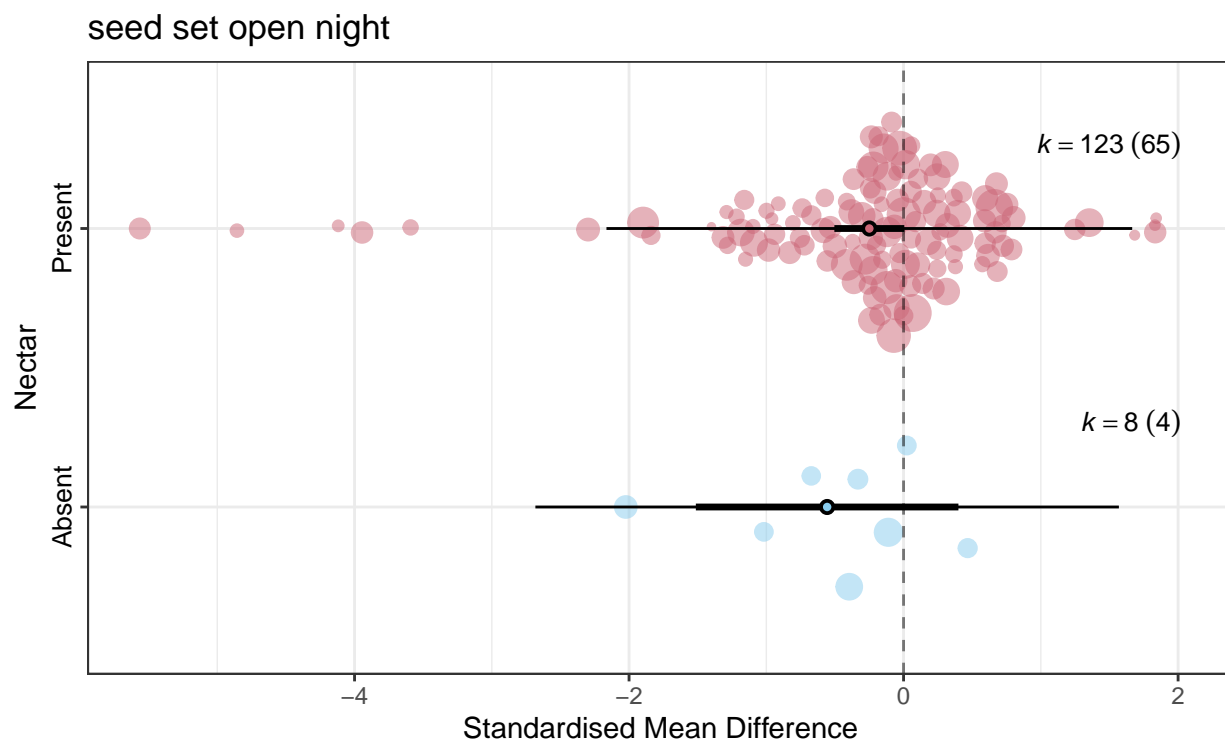

traits-51.pdf

```
##
## Multivariate Meta-Analysis Model (k = 131; method: REML)
##
## Variance Components:
##
##             estim    sqrt  nlvls  fixed         factor    R
## sigma^2.1  0.0561  0.2368     68     no        study_ID   no
## sigma^2.2  0.1127  0.3357    131     no       effect_ID   no
## sigma^2.3  0.0000  0.0001     66     no           phylo  yes
## sigma^2.4  0.7758  0.8808     66     no   accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 129) = 880.6905, p-val < .0001
##
## Test of Moderators (coefficient 2):
## QM(df = 1) = 0.1546, p-val = 0.6942
##
## Model Results:
##
##                    estimate      se     zval    pval   ci.lb    ci.ub
## intrcpt             -0.2573  0.1302  -1.9763  0.0481  -0.5125  -0.0021  *
## lifespanshort-lived -0.2059  0.5237  -0.3932  0.6942  -1.2324   0.8205
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

seed set open night
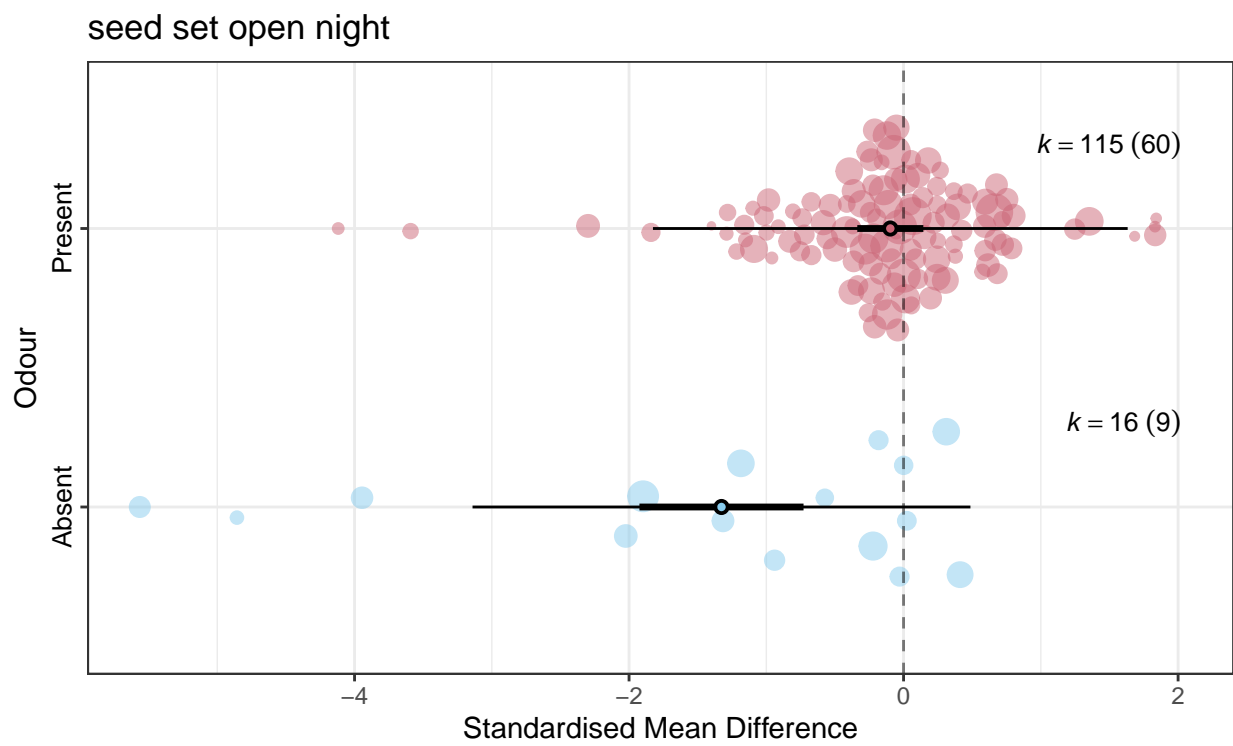
```
##
## Multivariate Meta-Analysis Model (k = 131; method: REML)
##
## Variance Components:
##
##             estim    sqrt  nlvls  fixed          factor    R
## sigma^2.1  0.0596  0.2442     68     no        study_ID   no
## sigma^2.2  0.1115  0.3339    131     no       effect_ID   no
## sigma^2.3  0.0000  0.0001     66     no           phylo  yes
## sigma^2.4  0.7668  0.8756     66     no   accepted_name   no
##
## Test for Residual Heterogeneity:
## QE(df = 129) = 873.9259, p-val < .0001
##
## Test of Moderators (coefficient 2):
## QM(df = 1) = 0.3715, p-val = 0.5422
##
## Model Results:
##
##                estimate      se     zval    pval    ci.lb   ci.ub
## intrcpt         -0.5569  0.4881  -1.1410  0.2539  -1.5134  0.3997
## nectarpresent    0.3074  0.5044   0.6095  0.5422  -0.6811  1.2960
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

seed set open night

traits-53.pdf

```
## 
## Multivariate Meta-Analysis Model (k = 131; method: REML)
## 
## Variance Components:
## 
##               estim    sqrt  nlvls  fixed          factor    R
## sigma^2.1   0.0267  0.1633     68     no        study_ID   no
## sigma^2.2   0.1151  0.3392    131     no        effect_ID   no
## sigma^2.3   0.0000  0.0000     66     no           phylo  yes
## sigma^2.4   0.6216  0.7884     66     no   accepted_name   no
## 
## Test for Residual Heterogeneity:
## QE(df = 129) = 708.6974, p-val < .0001
## 
## Test of Moderators (coefficient 2):
## QM(df = 1) = 14.0329, p-val = 0.0002
## 
## Model Results:
## 
##               estimate      se     zval    pval    ci.lb    ci.ub
## intrcpt        -1.3266  0.3050  -4.3501  <.0001  -1.9243  -0.7289  ***
## odourpresent    1.2300  0.3283   3.7461  0.0002   0.5864   1.8735  ***
## 
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

seed set open night

k = 115 (60)

k = 16 (9)

Odour

Present

Absent

Standardised Mean Difference

Precision (1/SE) ○ 2 ○ 4 ○ 6 ○ 8

traits-54.pdf