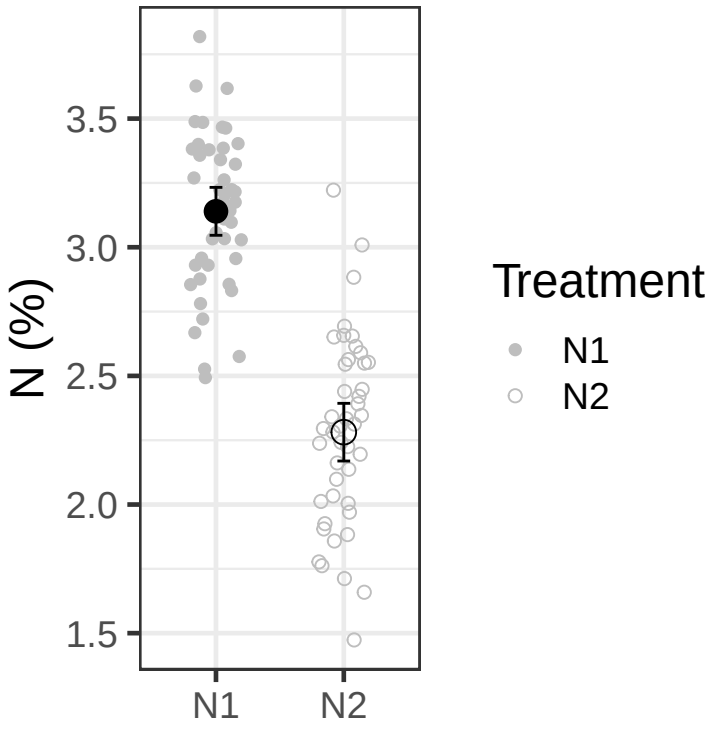
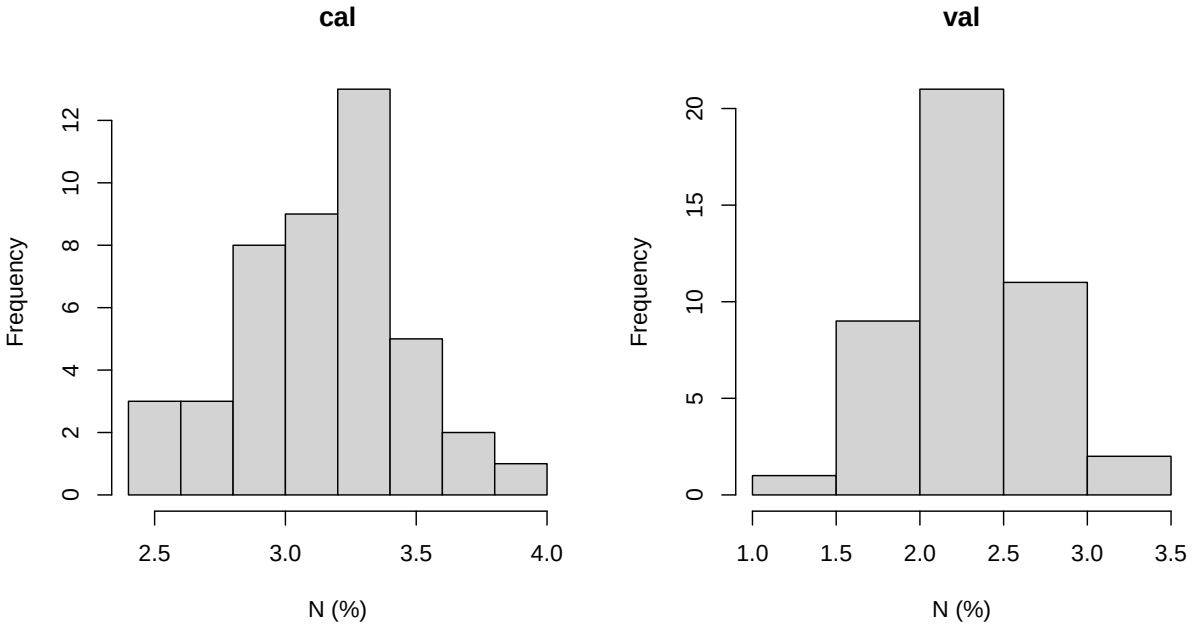
# Use side-view HSI data to predict N from N1 (high-level) data

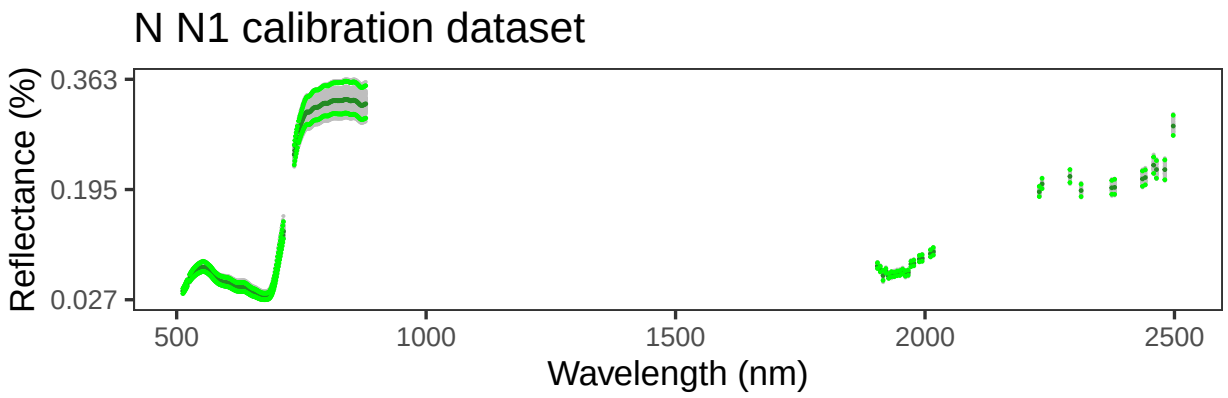
```
##
## N1 N2
## 44 44
```

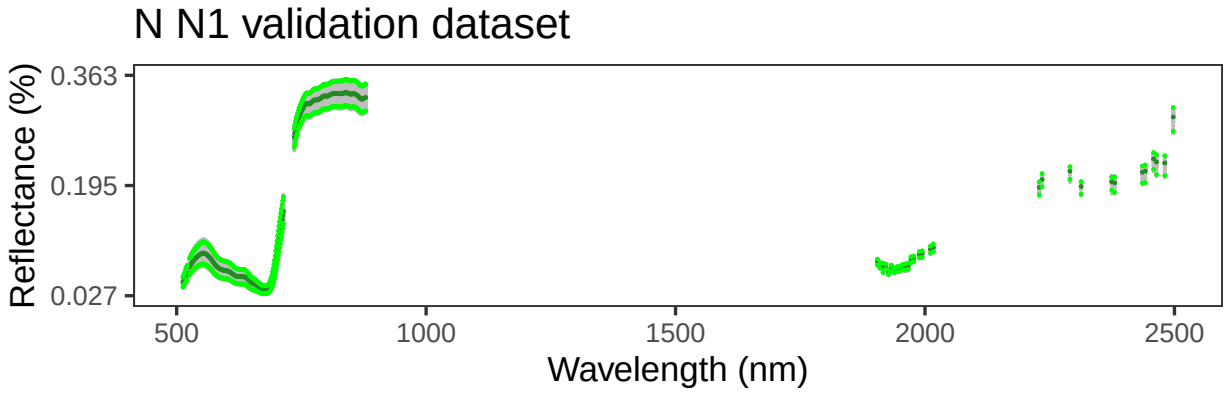


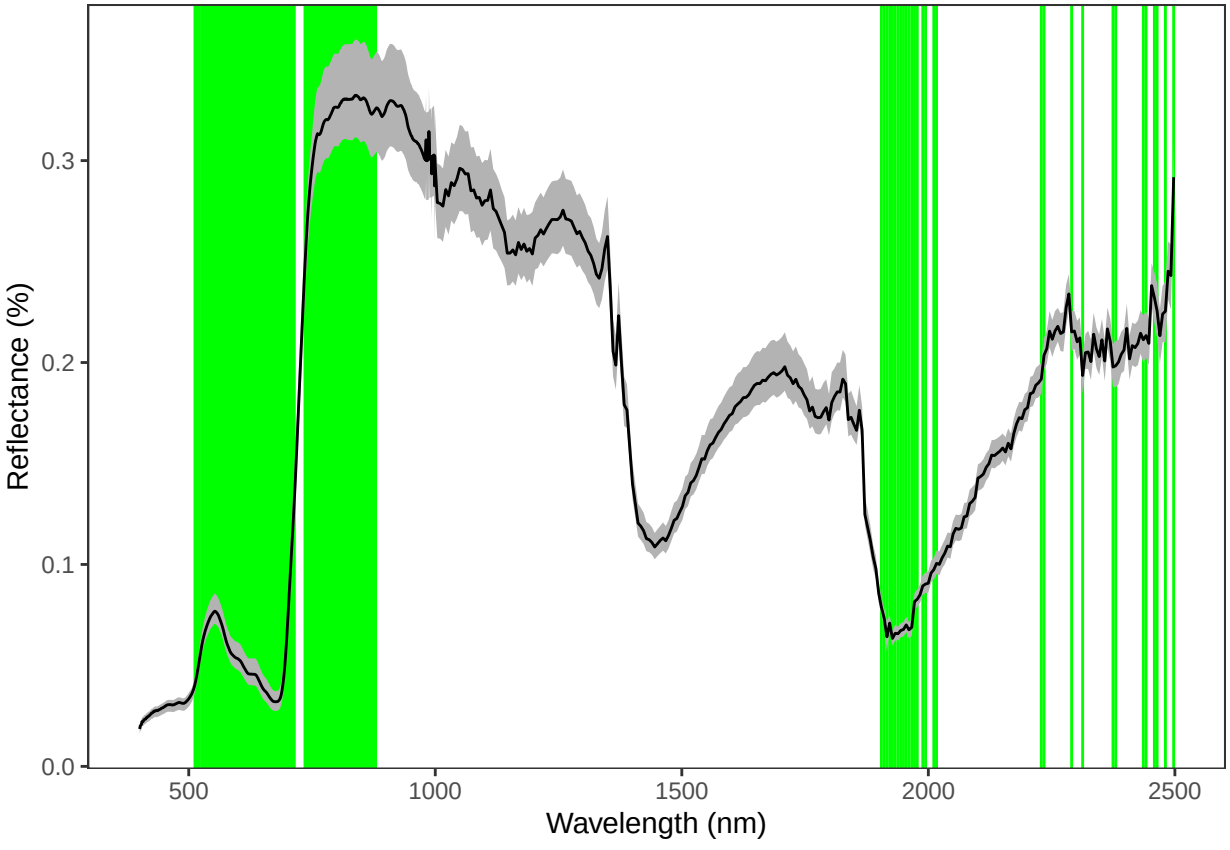

```
## $plsralg
## [1] "oscorespls"

##  [1] "902" "903" "904" "905" "906" "907" "908" "909" "910" "911" "912" "914"
## [13] "915" "916" "917" "918" "919" "920" "921" "922" "923" "924" "925" "926"
## [25] "927" "928" "929" "930" "931" "932" "933" "934" "935" "936" "937" "940"
## [37] "941" "942" "943" "944" "945" "946" "947" "948"

##  [1] "950" "951" "952" "953" "954" "955" "956" "957" "958" "959" "960" "962"
## [13] "963" "965" "966" "967" "968" "969" "970" "971" "972" "973" "974" "975"
## [25] "977" "978" "979" "980" "981" "982" "983" "984" "985" "986" "987" "988"
## [37] "989" "990" "991" "992" "993" "994" "995" "996"

##          value        wv
## 657 0.01814015 2011.0600
## 381 0.01803081  877.6676
```

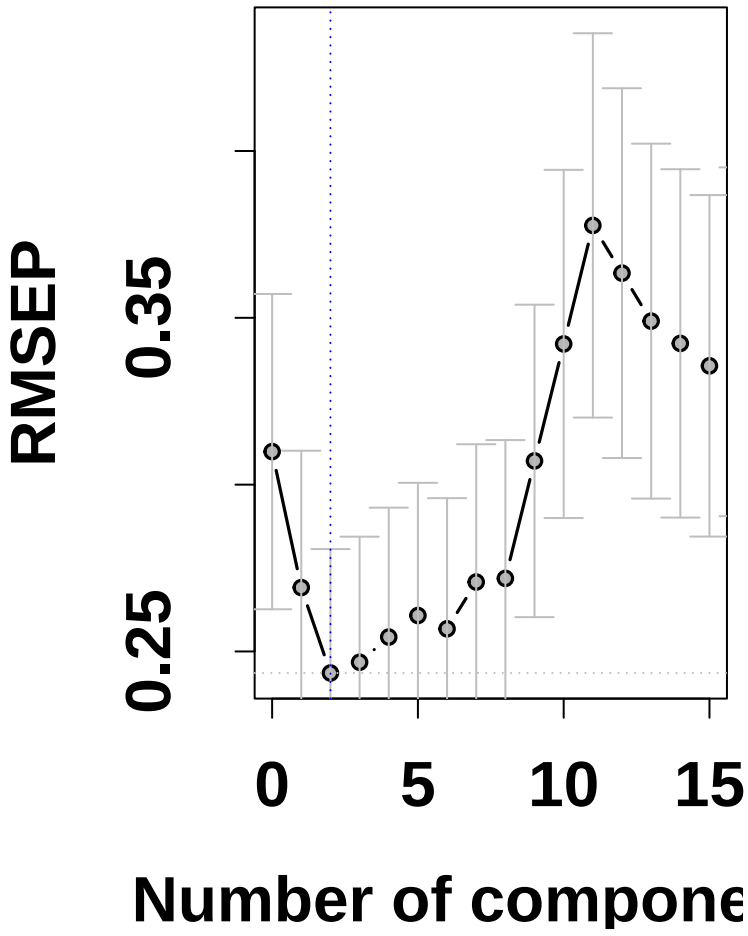
```
## 100 0.01766805  521.1924
## 278 0.01756316  744.6670
## 744 0.01747208 2497.5600
## 382 0.01712530  878.9721
```




N N1 calibration dataset
Reflectance (%)
0.363
0.195
0.027
500
1000
1500
2000
2500
Wavelength (nm)

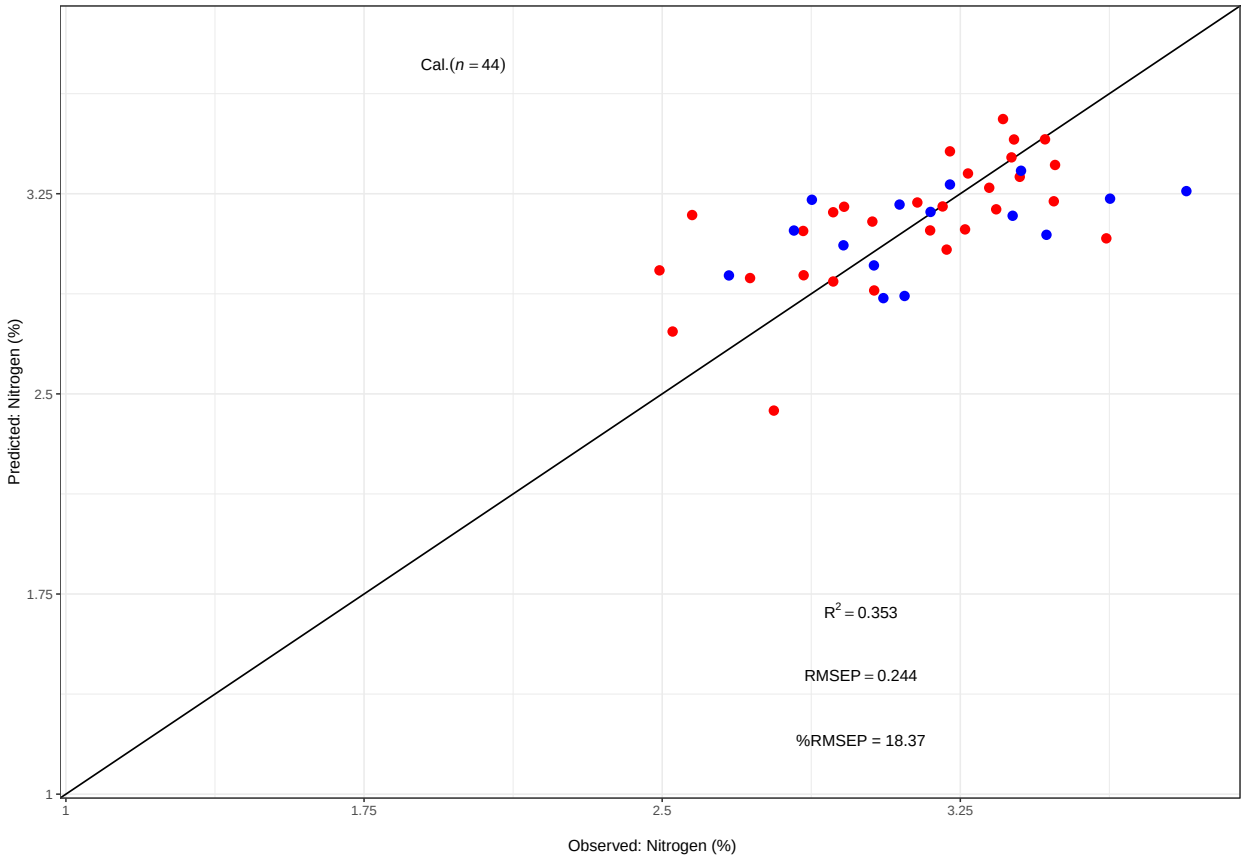

N N1 validation dataset
Reflectance (%)
0.363
0.195
0.027
500
1000
1500
2000
2500
Wavelength (nm)

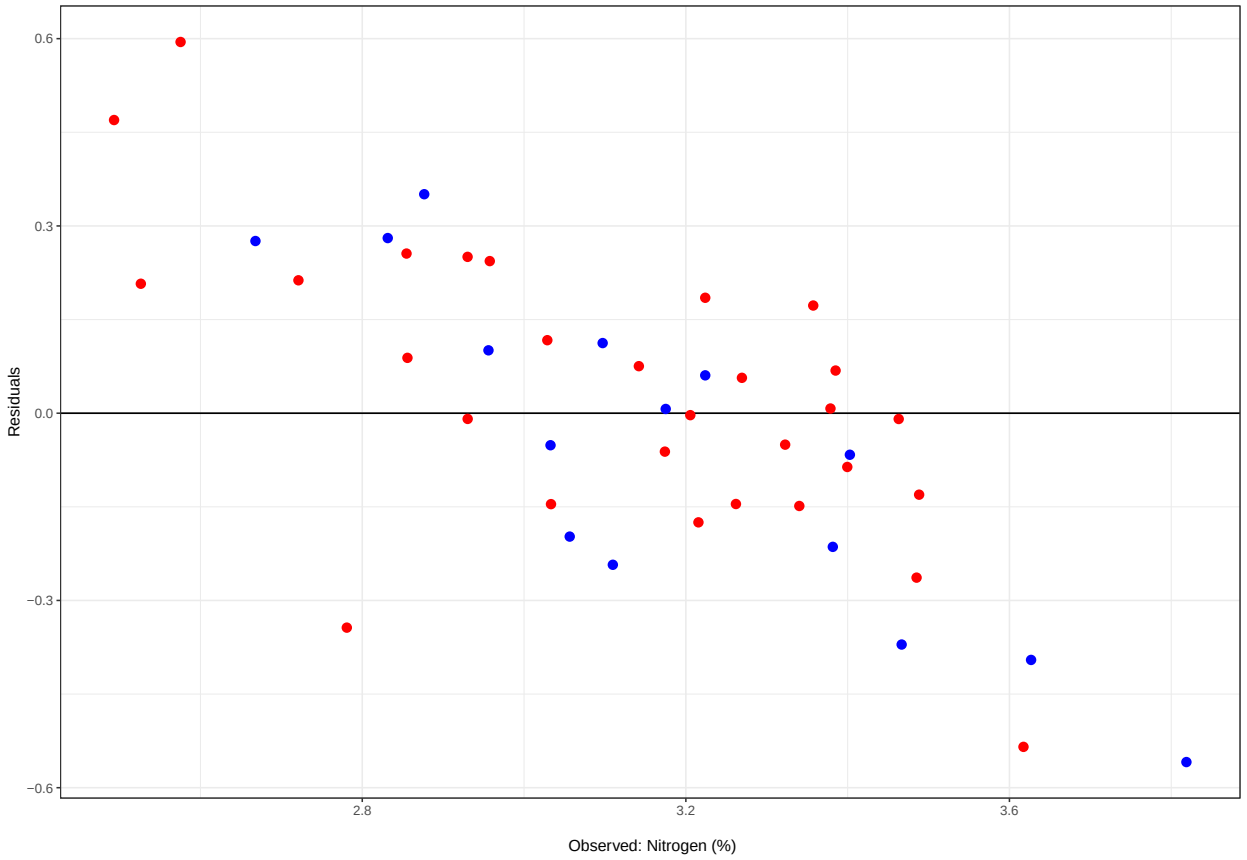

Reflectance (%)
0.3
0.2
0.1
0.0
500
1000
1500
2000
2500
Wavelength (nm)

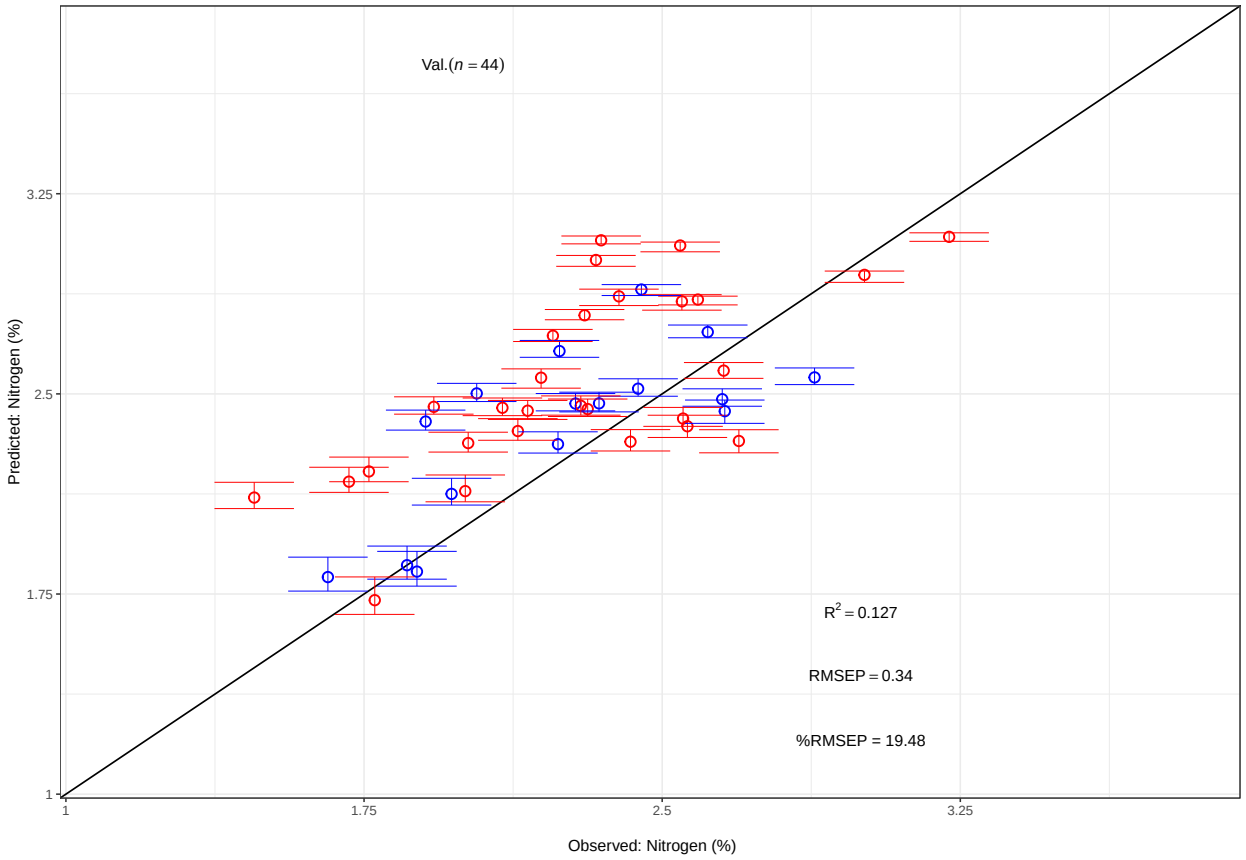


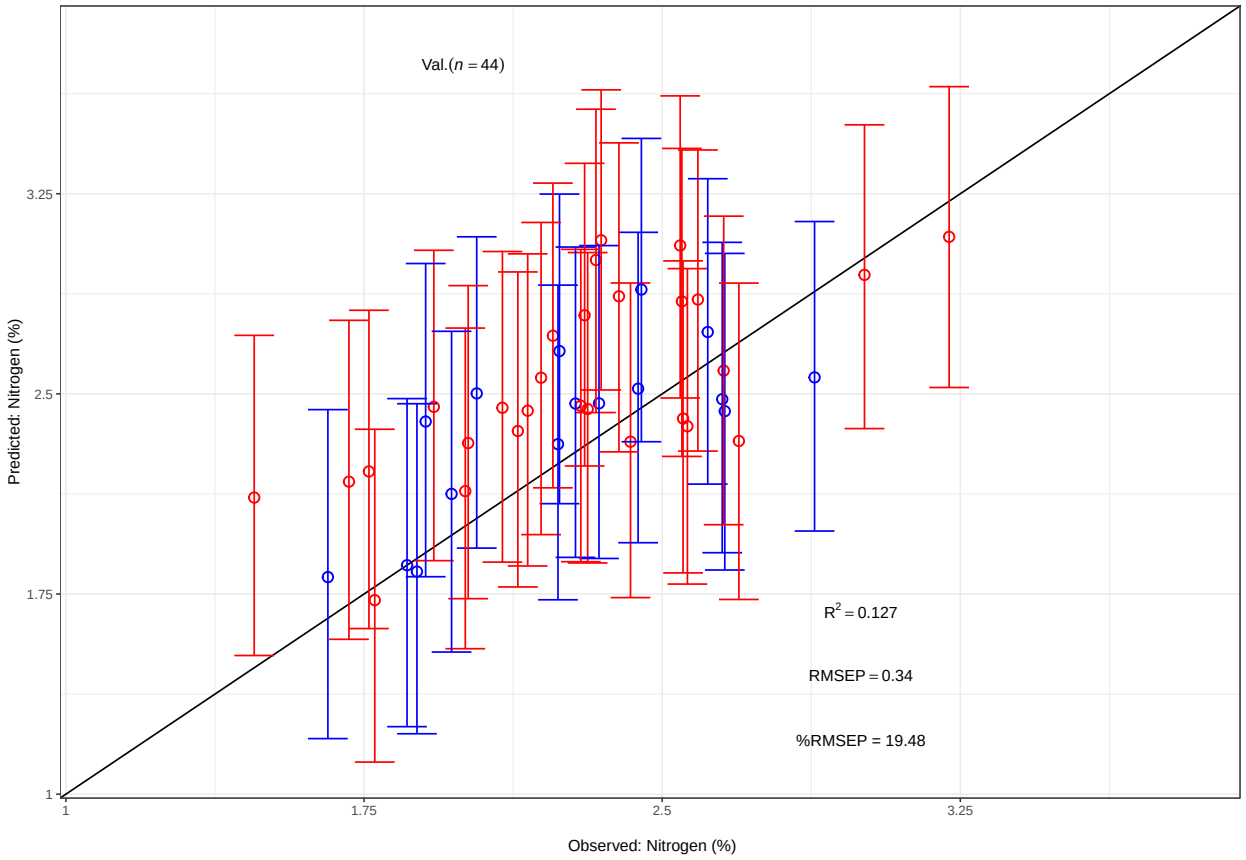

```
##   data_set    R2 RMSEP NRMSEP
## 1      cal 0.353 0.244 18.373
## 2      val 0.127 0.340 19.476
```

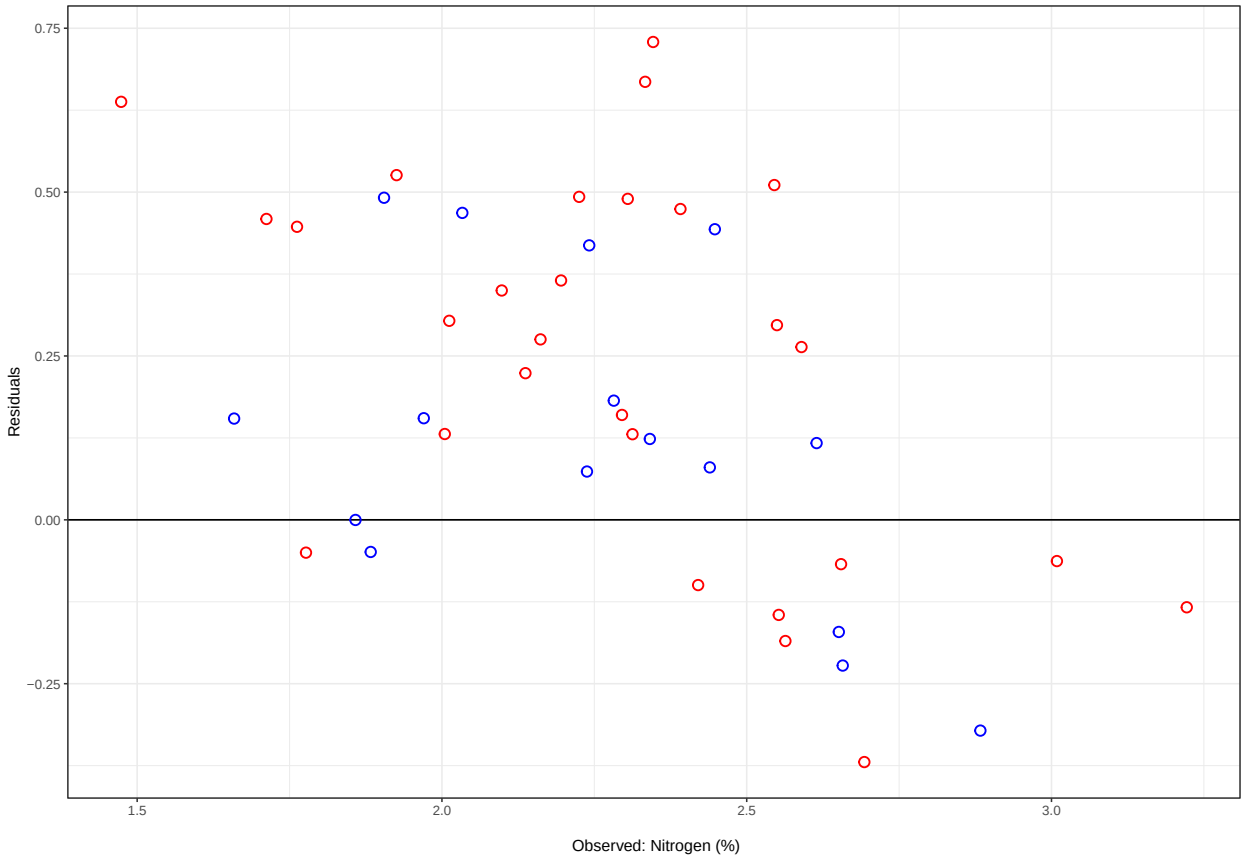
```
##   Observed Predicted   Residuals Treatment Subpop      uci      lci      upi
## 1  2.03345  2.501742  0.46829221        N2    TRJ 2.539429 2.471274 3.088679
## 2  2.42030  2.320773 -0.09952682        N2    IND 2.366045 2.286003 2.915492
## 3  2.24165  2.660384  0.41873386        N2    TRJ 2.700237 2.637041 3.248766
## 4  3.00890  2.945985 -0.06291509        N2    IND 2.960289 2.917896 3.508255
## 5  1.88310  1.834084 -0.04901562        N2    TRJ 1.909907 1.779573 2.463118
## 6  2.31260  2.443200  0.13060024        N2    IND 2.480718 2.415284 3.029631
##        lpi
## 1 1.922024
## 2 1.736556
## 3 2.088513
## 4 2.369931
## 5 1.226363
## 6 1.866371
```


Cal.(n = 44)
3.25
2.5
1.75
1
Predicted: Nitrogen (%)
1
1.75
2.5
3.25
Observed: Nitrogen (%)
R2 = 0.353
RMSEP = 0.244
%RMSEP = 18.37


0.6
0.3
0.0
−0.3
−0.6
Residuals
2.8
3.2
3.6
Observed: Nitrogen (%)


Val.(n = 44)
3.25
2.5
1.75
1
Predicted: Nitrogen (%)
1
1.75
2.5
3.25
Observed: Nitrogen (%)
R2 = 0.127
RMSEP = 0.34
%RMSEP = 19.48


Val.(n = 44)
Predicted: Nitrogen (%)
Observed: Nitrogen (%)
1
1.75
2.5
3.25
R2 = 0.127
RMSEP = 0.34
%RMSEP = 19.48




```
##       Iteration Intercept X557.05075 X558.29107 X555.81069 X554.57088
## Seg 1         1  7.559889 -0.3056200 -0.3066086 -0.3042645 -0.3038249
## Seg 2         2  7.681784 -0.3086218 -0.3094687 -0.3074005 -0.3070473
## Seg 3         3  7.694247 -0.3104066 -0.3112264 -0.3092123 -0.3088848
## Seg 4         4  7.638081 -0.3201807 -0.3207973 -0.3190756 -0.3188424
## Seg 5         5  7.732264 -0.3094286 -0.3102276 -0.3082152 -0.3079170
## Seg 6         6  7.607388 -0.3096224 -0.3104417 -0.3084372 -0.3081049
```

```
##                coefs
## 557.05075 -0.3090091
## 558.29107 -0.3098279
## 555.81069 -0.3078228
## 554.57088 -0.3074894
## 559.53165 -0.3106405
## 560.77247 -0.3108430
```