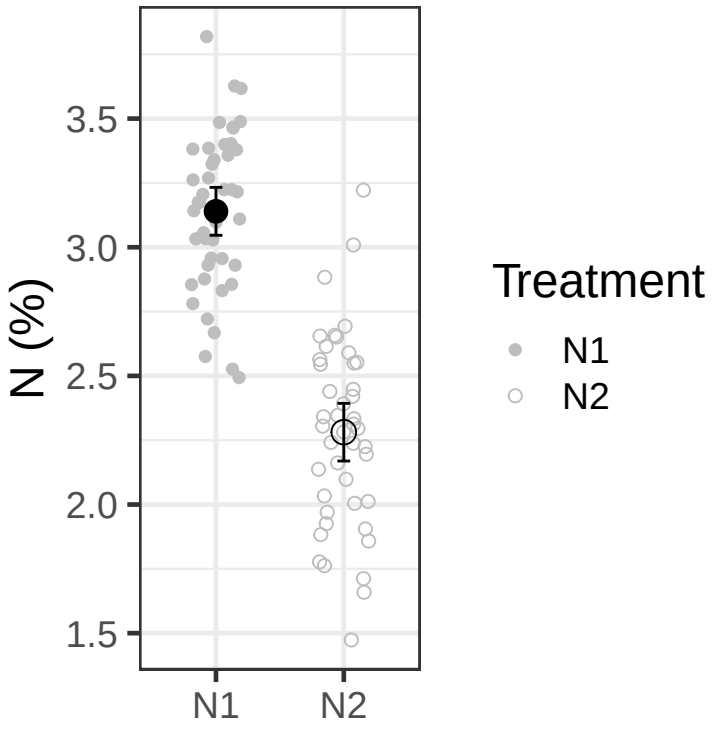
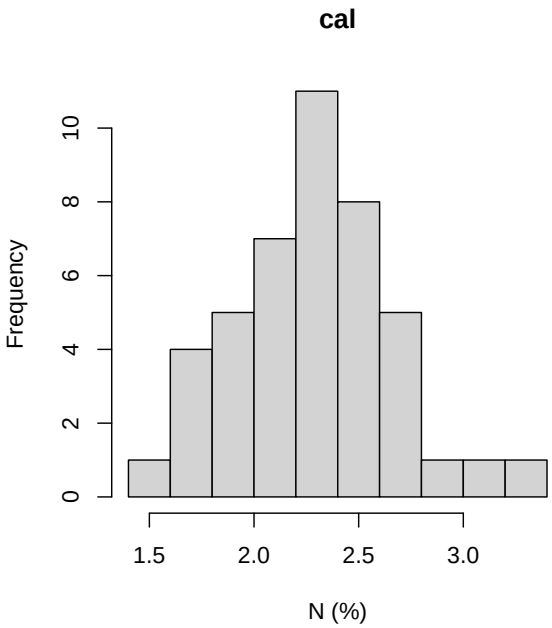
Use side-view HSI data to predict N from N2 (high-level) data

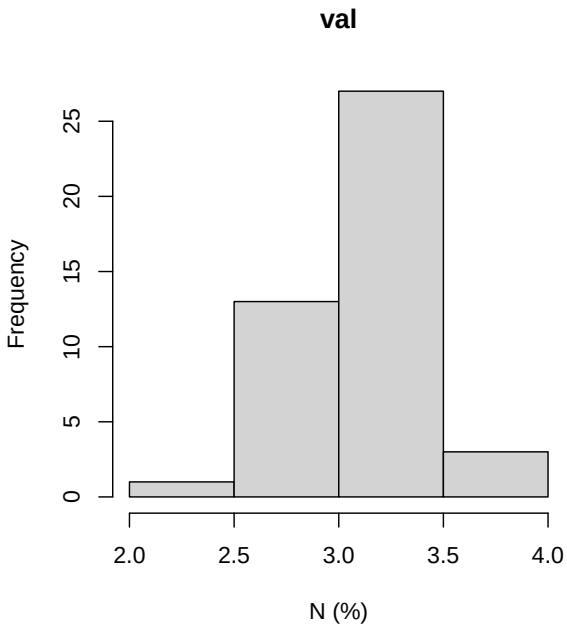
```
##
## N1 N2
## 44 44
```

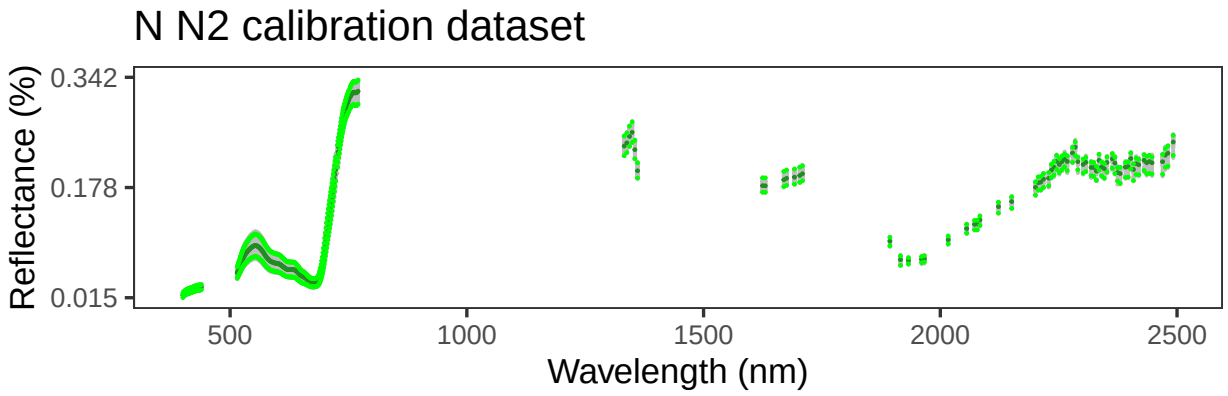


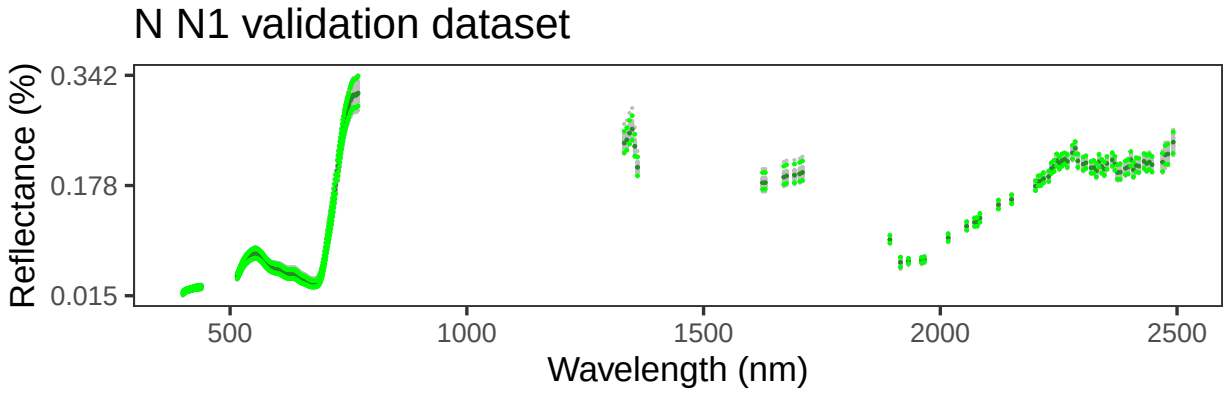

```
## $plsralg
## [1] "oscorespls"

##  [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"

##  [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"

##            value        wv
## 33  -0.005804168  439.1664
## 602 -0.005815370 1703.2500
```

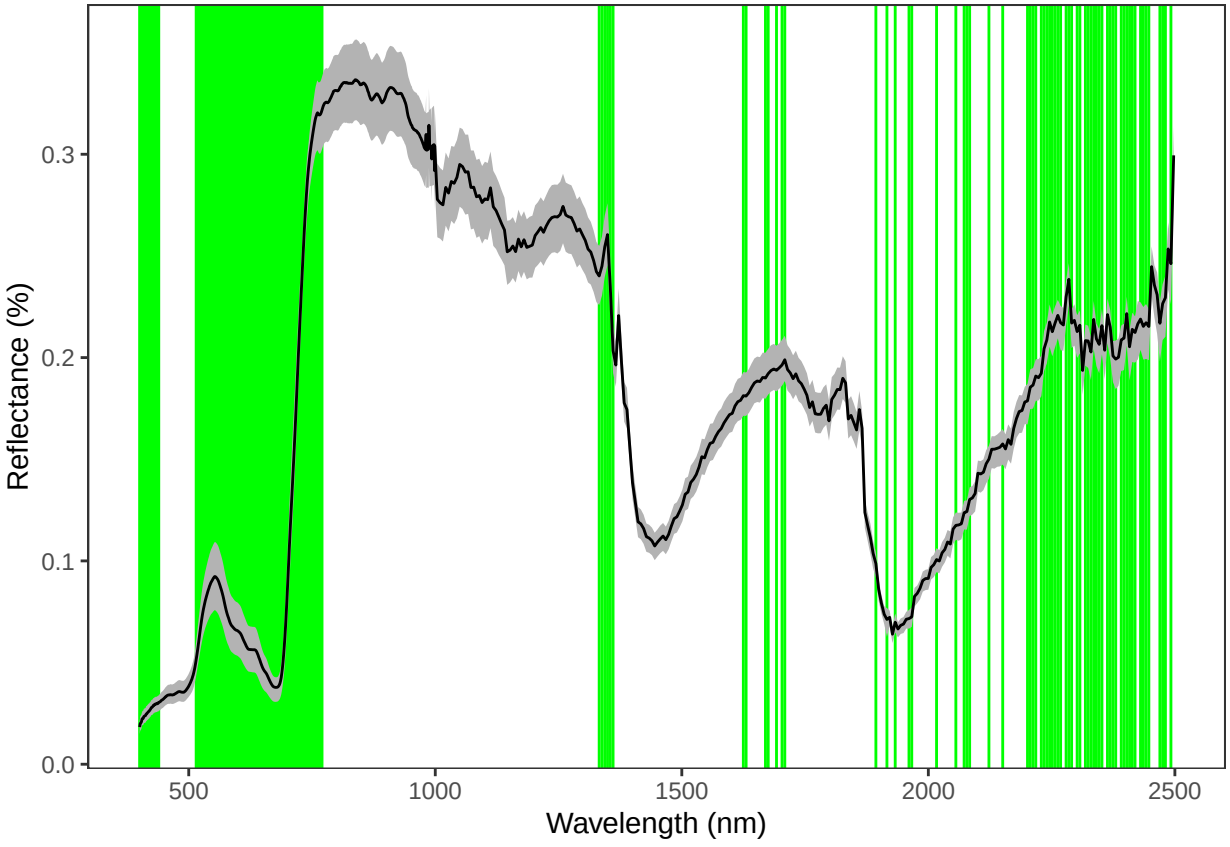
```
## 298 -0.006178570  770.2809
## 588 -0.006553739 1624.7600
## 261 -0.006643067  722.9753
## 536 -0.006687526 1332.3800
```

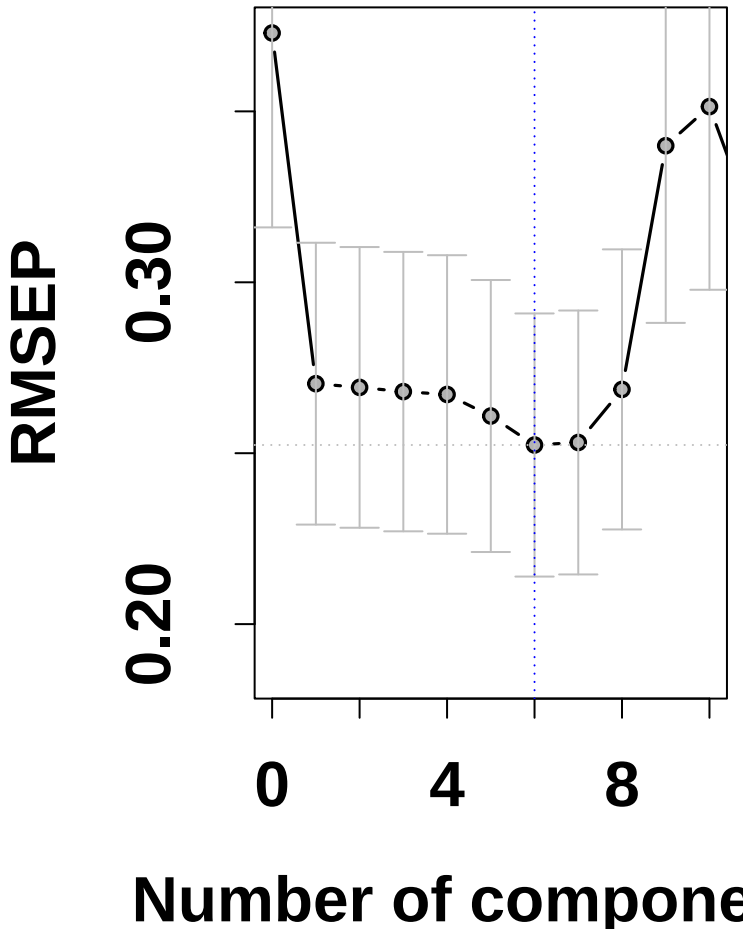





N N2 calibration dataset
Reflectance (%)
0.342
0.178
0.015
500
1000
1500
2000
2500
Wavelength (nm)

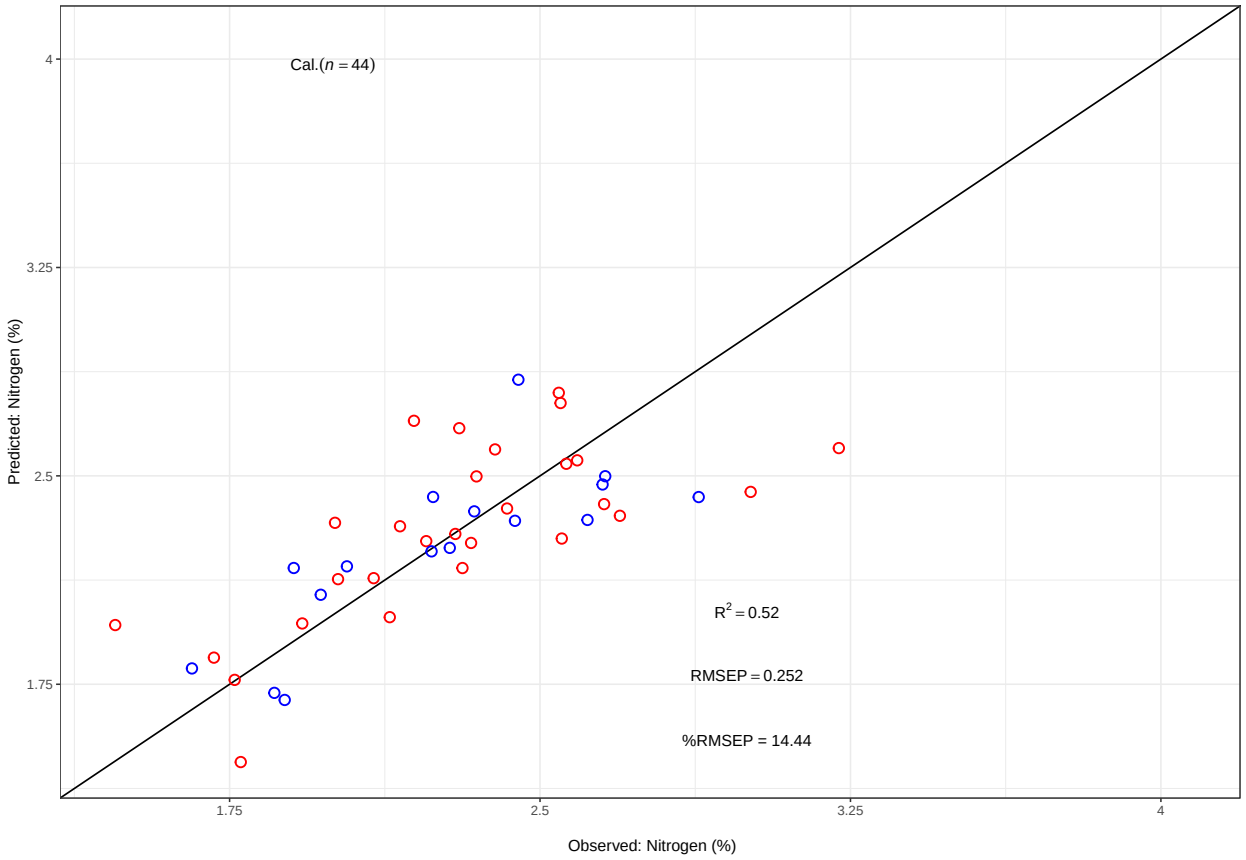

N N1 validation dataset
Reflectance (%)
0.342
0.178
0.015
500
1000
1500
2000
2500
Wavelength (nm)

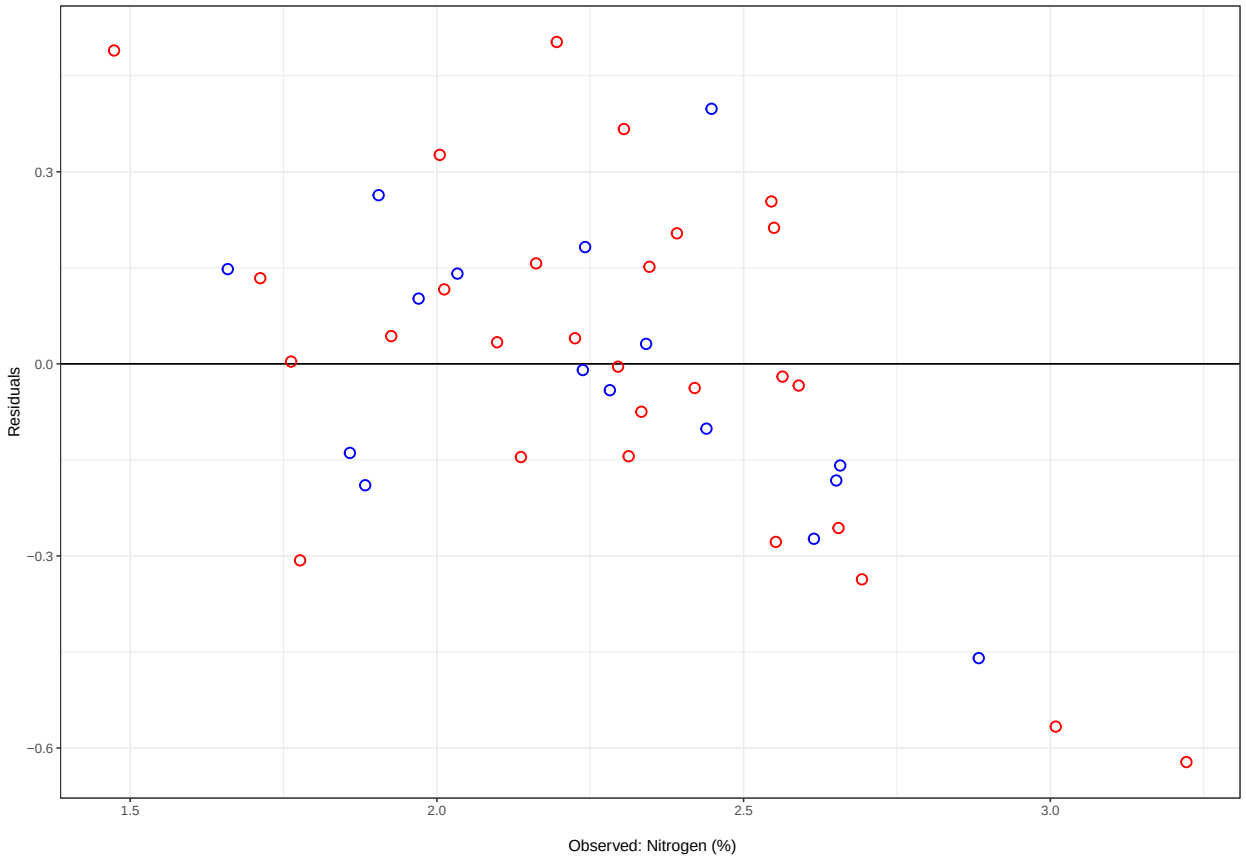

Reflectance (%)
0.3
0.2
0.1
0.0
500
1000
1500
2000
2500
Wavelength (nm)

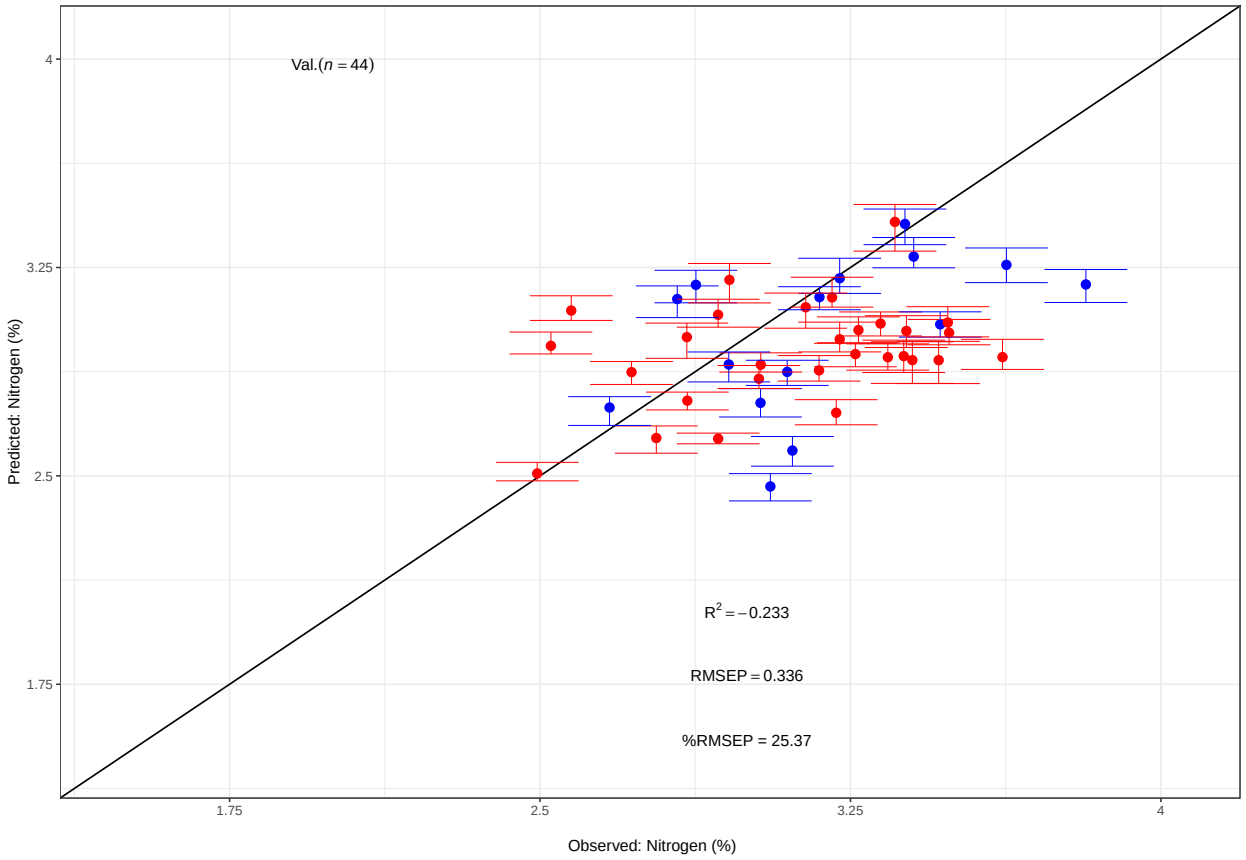


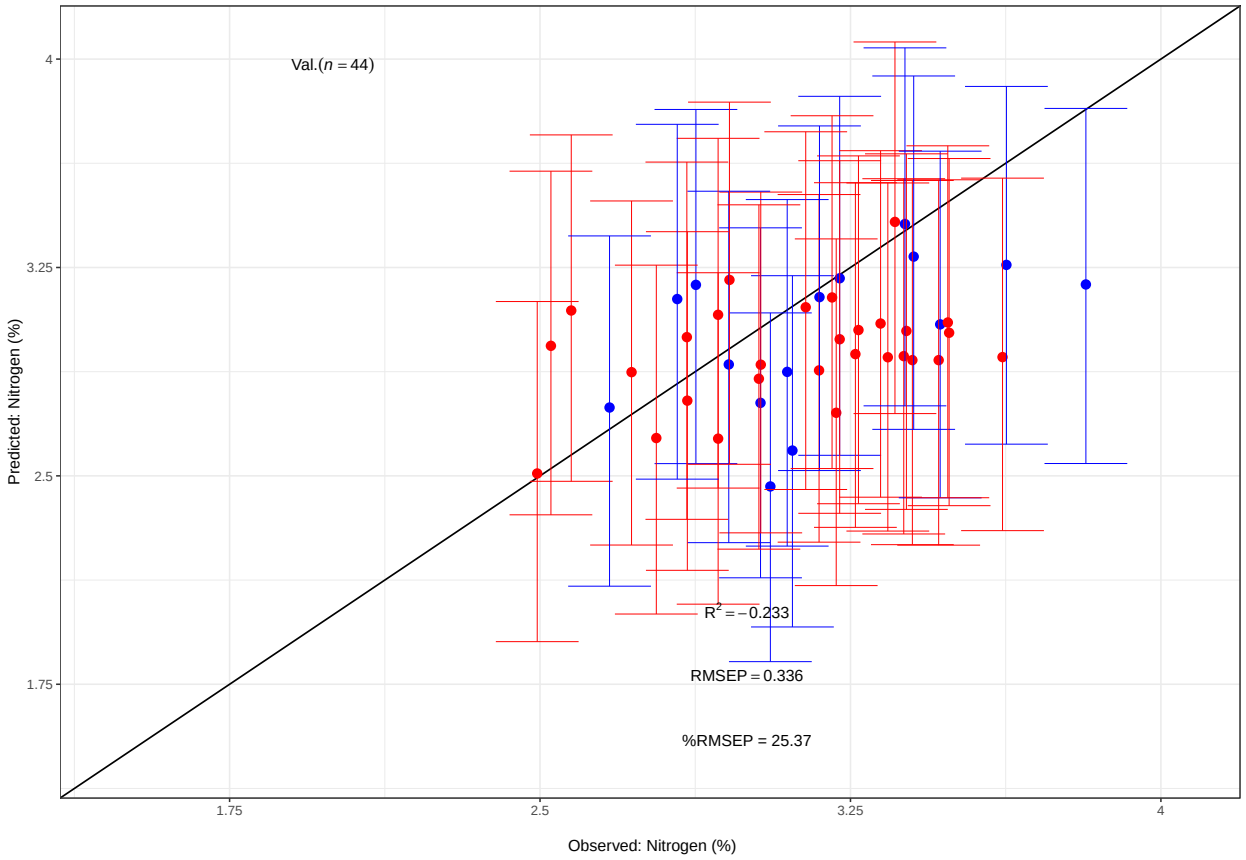

```
##   data_set     R2 RMSEP NRMSEP
## 1      cal  0.520 0.252 14.438
## 2      val -0.233 0.336 25.374
```

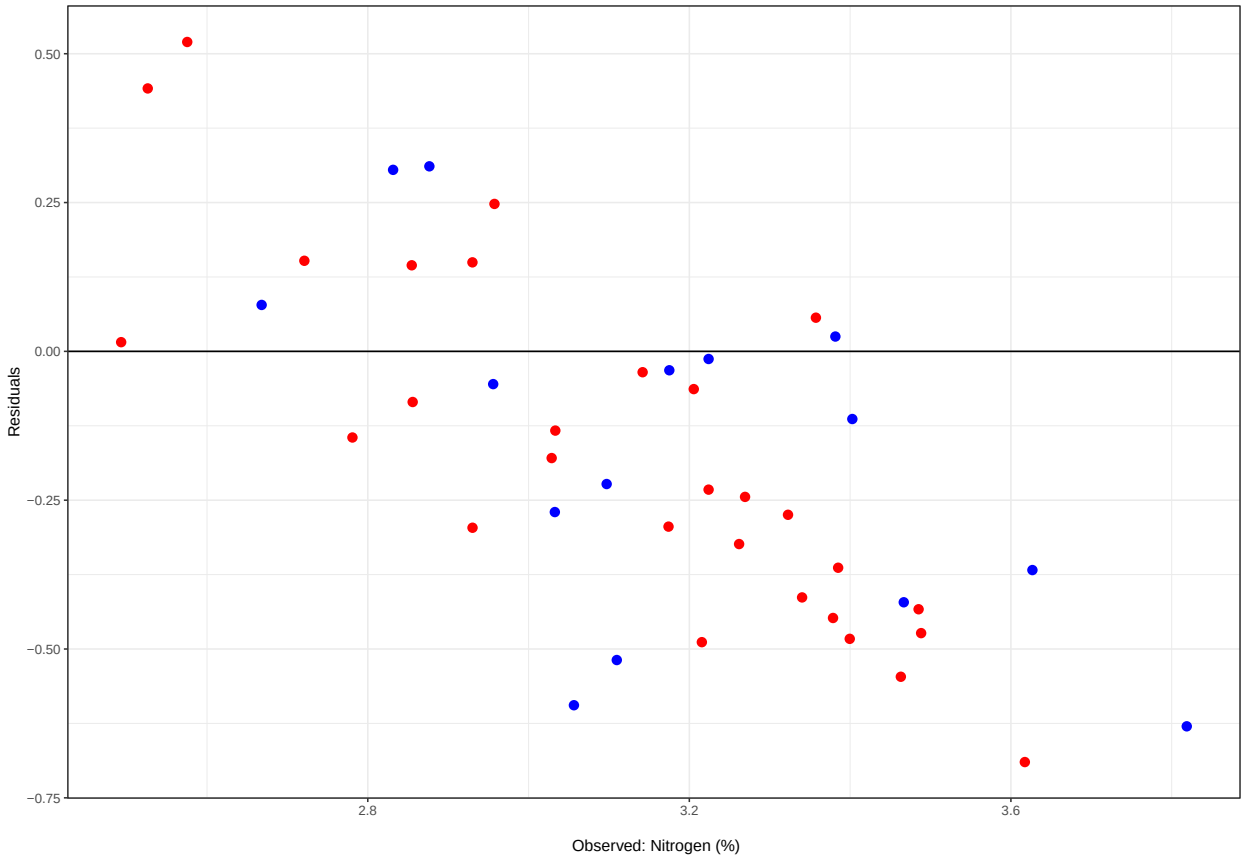
```
##   Observed Predicted  Residuals Treatment Subpop      uci      lci      upi
## 1  3.22395  3.211133 -0.0128165        N1    TRJ 3.283246 3.156722 3.865977
## 2  3.03270  2.762739 -0.2699613        N1    TRJ 2.813835 2.711992 3.392672
## 3  3.26930  3.024843 -0.2444567        N1    IND 3.072215 2.979151 3.651566
## 4  2.57540  3.095151  0.5197507        N1    IND 3.148112 3.059428 3.727085
## 5  3.46310  2.916490 -0.5466097        N1    IND 2.984225 2.832078 3.565565
## 6  3.17410  2.879677 -0.2944228        N1    IND 2.932831 2.841095 3.512463
##        lpi
## 1 2.573990
## 2 2.133155
## 3 2.399799
## 4 2.480455
## 5 2.250738
## 6 2.261463
```


Cal.(n = 44)
R2 = 0.52
RMSEP = 0.252
%RMSEP = 14.44
Predicted: Nitrogen (%)
Observed: Nitrogen (%)
4
3.25
2.5
1.75
1.75
2.5
3.25
4


0.3
0.0
−0.3
−0.6
Residuals
1.5
2.0
2.5
3.0
Observed: Nitrogen (%)


Val.(n = 44)
R2 = −0.233
RMSEP = 0.336
%RMSEP = 25.37
Predicted: Nitrogen (%)
Observed: Nitrogen (%)
4
3.25
2.5
1.75
1.75
2.5
3.25
4


Val.(n = 44)
R² = −0.233
RMSEP = 0.336
%RMSEP = 25.37
Predicted: Nitrogen (%)
Observed: Nitrogen (%)
4
3.25
2.5
1.75
1.75
2.5
3.25
4




```
##       Iteration Intercept X698.81871  X697.54987 X700.08782   X696.28128
## Seg 1         1 0.6109406 -0.3817508 -0.18410656 -0.5734880 -0.007796566
## Seg 2         2 0.6575994 -0.2413458 -0.05393606 -0.4241096  0.102504791
## Seg 3         3 1.3469449 -0.3357308 -0.13746313 -0.5274233  0.035781035
## Seg 4         4 1.7111459 -0.2732896 -0.06734761 -0.4761471  0.119883428
## Seg 5         5 0.8932487 -0.3834100 -0.18122778 -0.5786795 -0.002140741
## Seg 6         6 0.8640388 -0.3274001 -0.12331211 -0.5240077  0.056116699
```

```
##                coefs
## 698.81871 -0.3177016
## 697.54987 -0.1192144
## 700.08782 -0.5100813
## 696.28128  0.0557575
## 695.01293  0.2446219
## 701.35718 -0.6902870
```