

LOG Supplemental Appendix in support of PAPER
TITLE

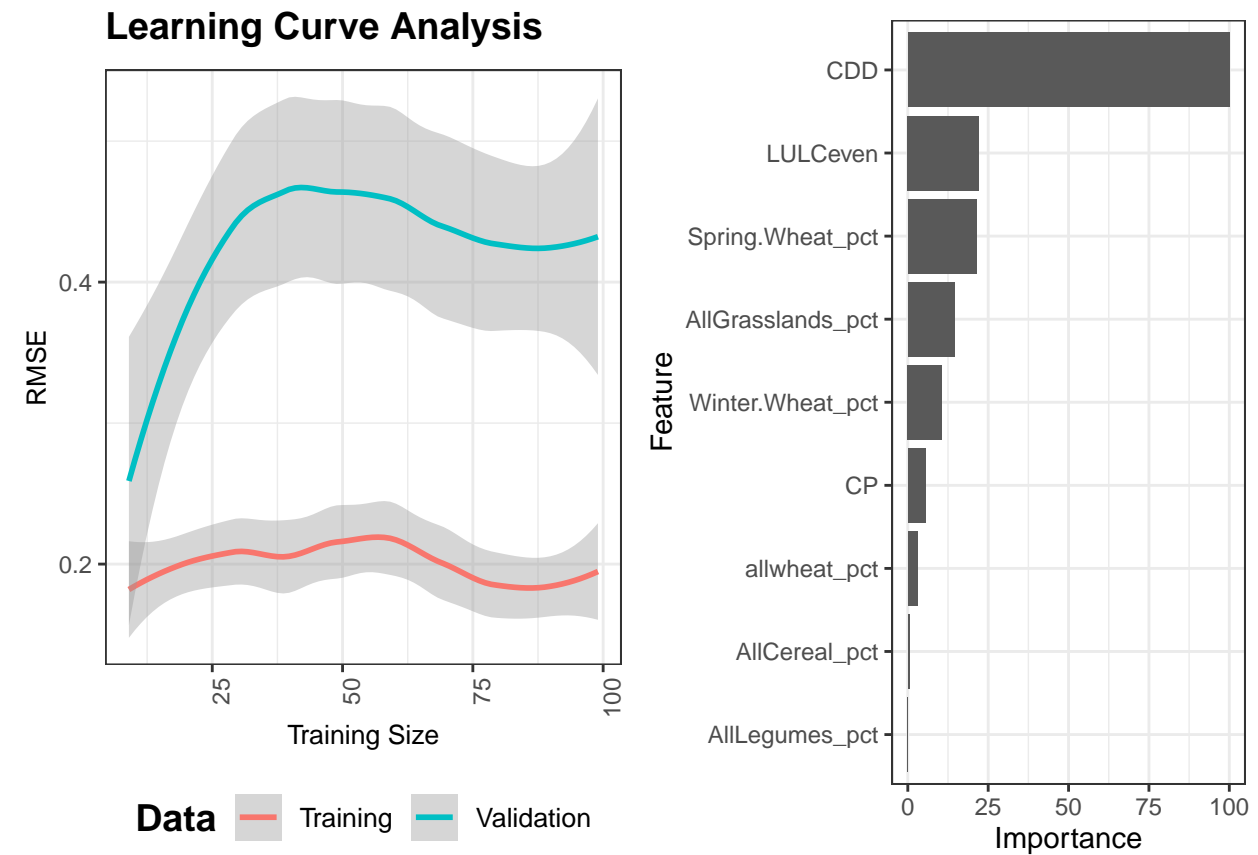
Subodh Adhikari, Sanford Eigenbrode, Erich Seamon

10/22/2021

Contents

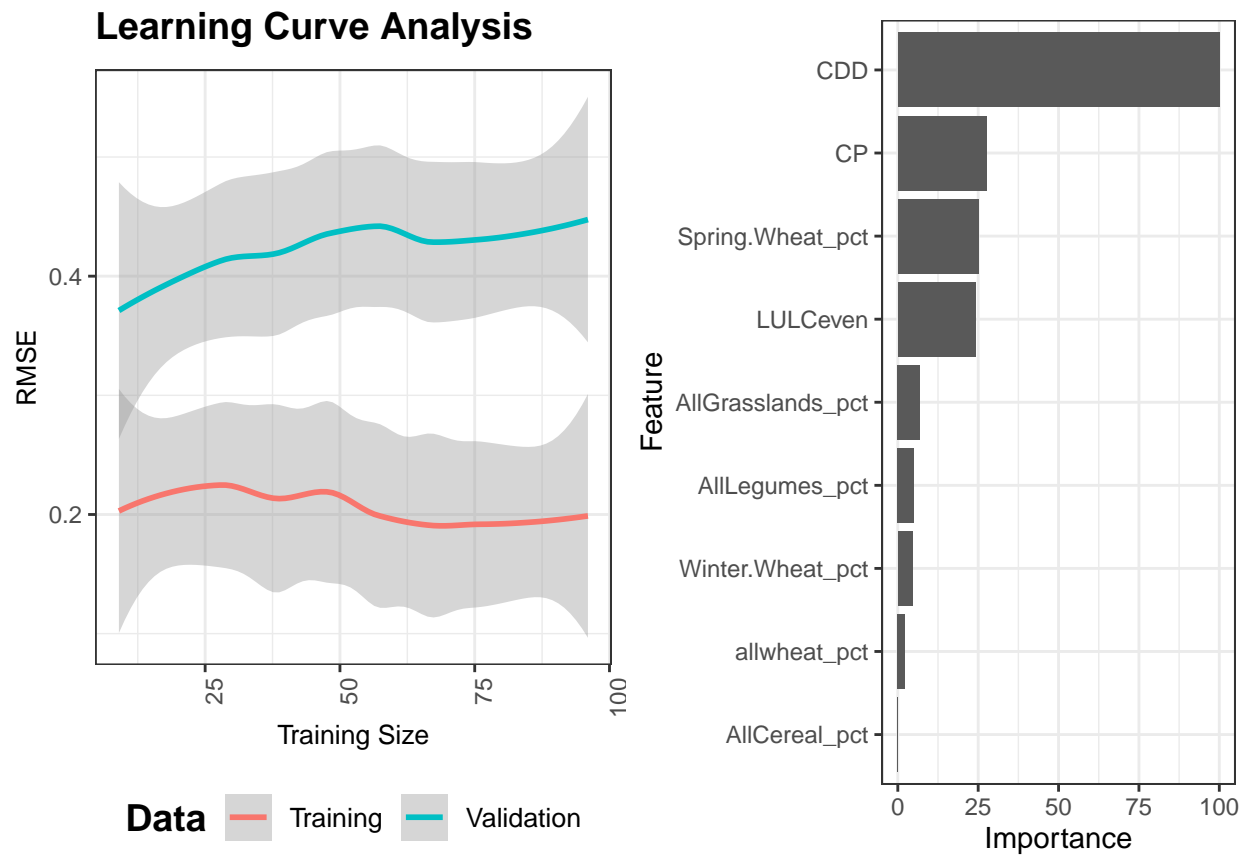
LOG Total Aphids Model	2
LOG Total Aphids No Mfc Model	3
LOG Relative Abundance Mfc Model	4
LOG Individual Aphids: Rp	5
LOG Individual Aphids: Sa	6
LOG Individual Aphids: Md	7
LOG Individual Aphids: Mfc	8

LOG Total Aphids Model



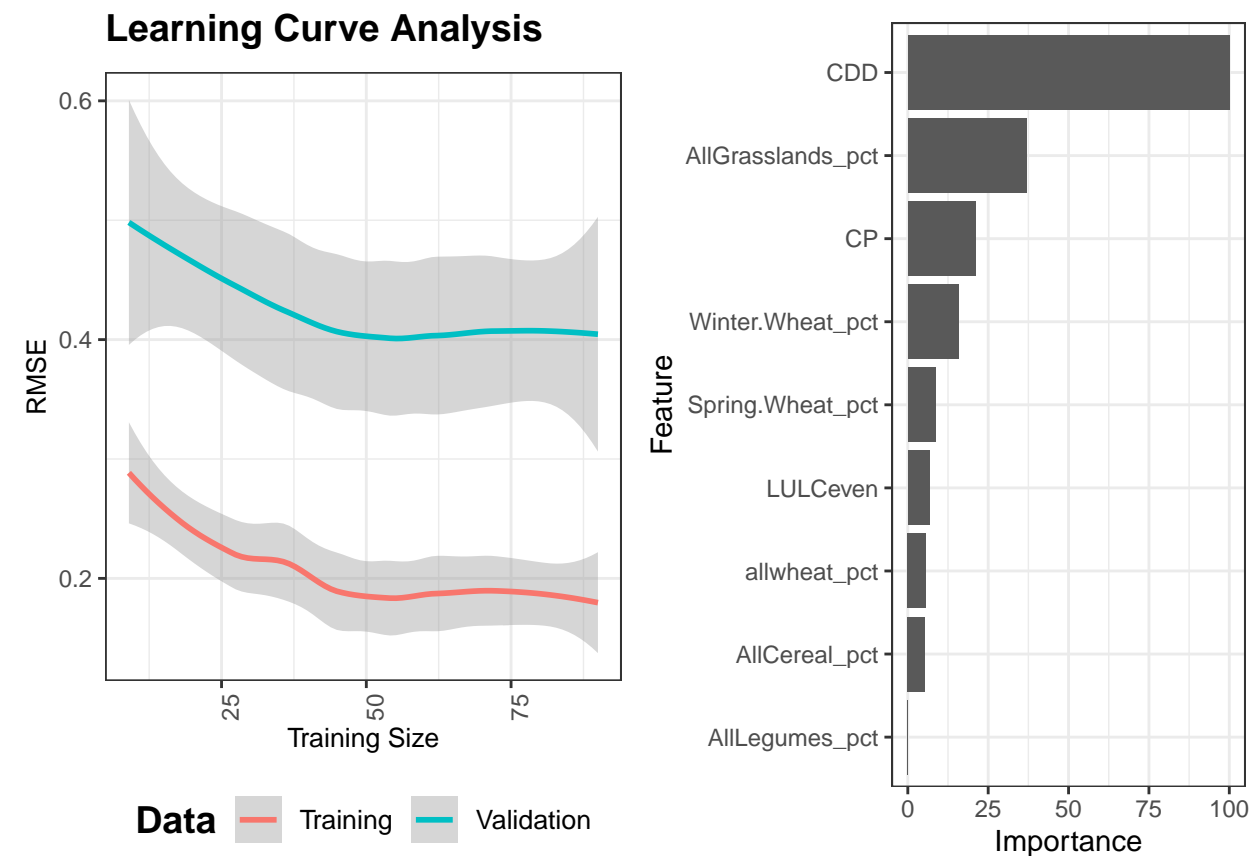
```
## Random Forest
##
## 99 samples
## 9 predictors
##
## No pre-processing
## Resampling: Cross-Validated (10 fold, repeated 1 times)
## Summary of sample sizes: 89, 90, 89, 89, 88, 89, ...
## Resampling results across tuning parameters:
##
## mtry  RMSE      Rsquared  MAE
## 2     0.4623113  0.2923363  0.3778123
## 5     0.4528953  0.3123748  0.3677315
## 9     0.4544393  0.3283200  0.3719614
##
## RMSE was used to select the optimal model using the smallest value.
## The final value used for the model was mtry = 5.
```

LOG Total Aphids No Mfc Model



```
## Random Forest
##
## 96 samples
## 9 predictors
##
## No pre-processing
## Resampling: Cross-Validated (10 fold, repeated 1 times)
## Summary of sample sizes: 88, 86, 85, 86, 87, 87, ...
## Resampling results across tuning parameters:
##
##  mtry  RMSE      Rsquared  MAE
##  2      0.4459081  0.2683325  0.3582540
##  5      0.4465060  0.2360530  0.3611294
##  9      0.4556958  0.2194093  0.3721423
##
## RMSE was used to select the optimal model using the smallest value.
## The final value used for the model was mtry = 2.
```

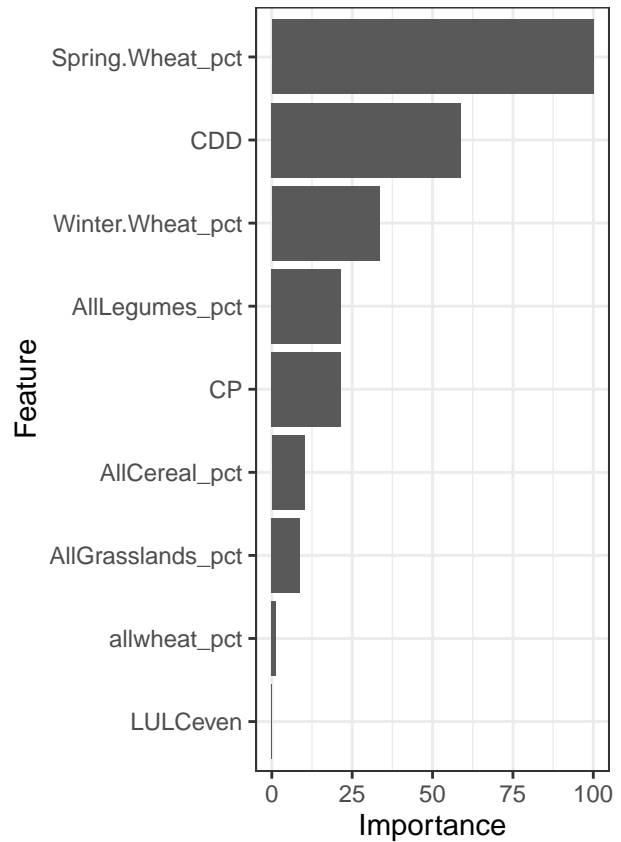
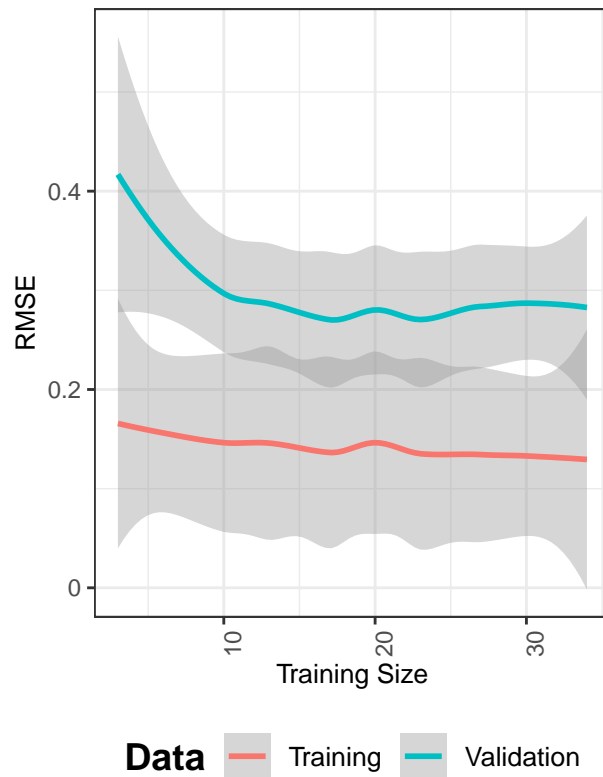
LOG Relative Abundance Mfc Model



```
## Random Forest
##
## 90 samples
## 9 predictors
##
## No pre-processing
## Resampling: Cross-Validated (10 fold, repeated 1 times)
## Summary of sample sizes: 81, 81, 82, 81, 82, 81, ...
## Resampling results across tuning parameters:
##
##  mtry  RMSE      Rsquared  MAE
##  2      0.4145840  0.2718757  0.3477791
##  5      0.4119090  0.2728665  0.3488128
##  9      0.4174716  0.2501613  0.3539596
##
## RMSE was used to select the optimal model using the smallest value.
## The final value used for the model was mtry = 5.
```

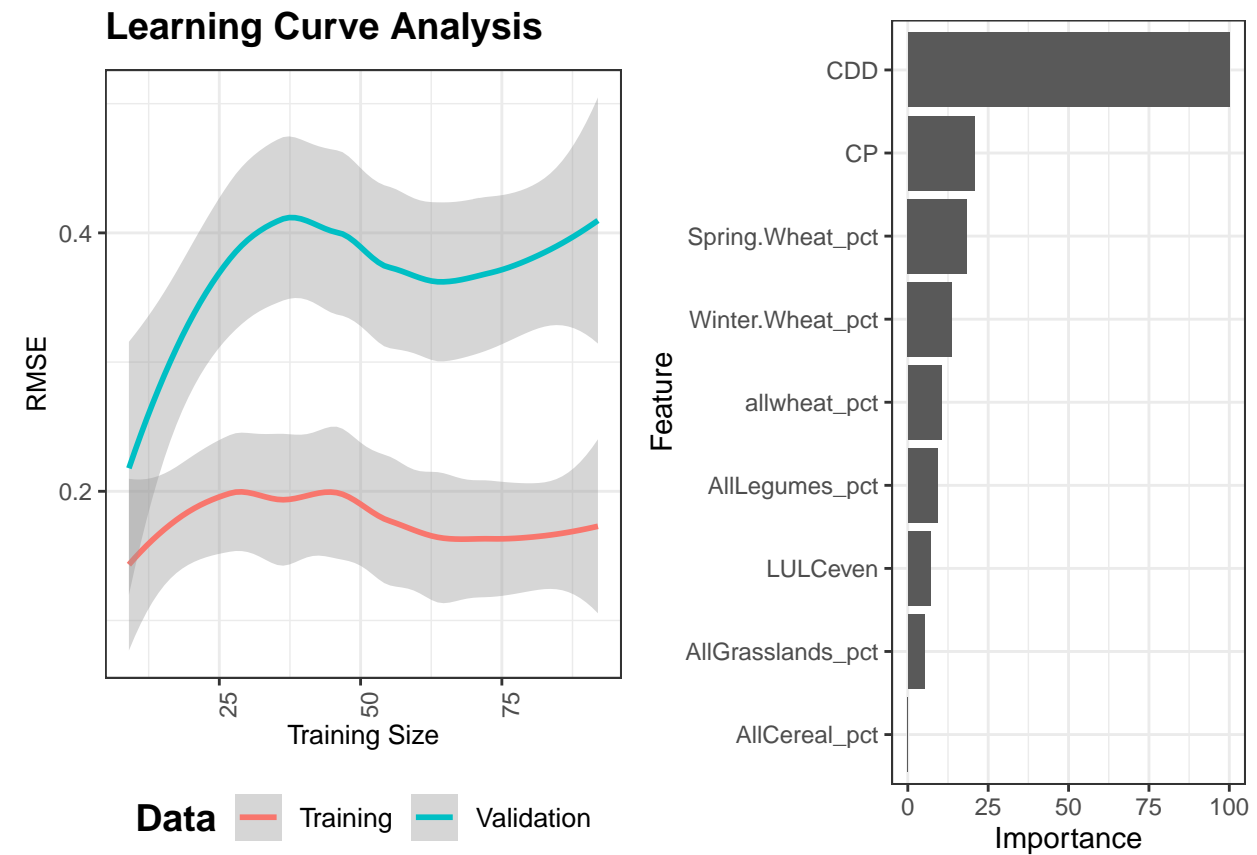
LOG Individual Aphids: Rp

Learning Curve Analysis



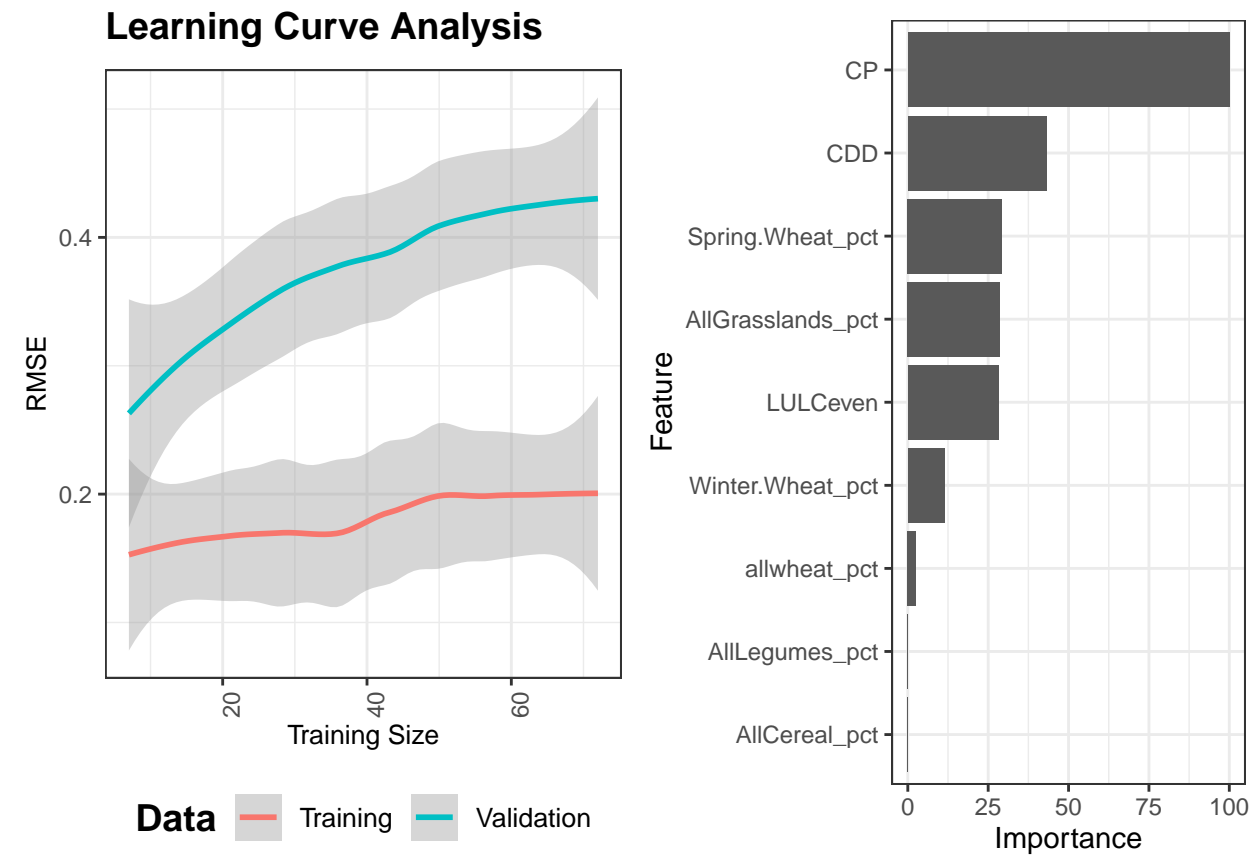
```
## Random Forest
##
## 34 samples
## 9 predictors
##
## No pre-processing
## Resampling: Cross-Validated (10 fold, repeated 1 times)
## Summary of sample sizes: 30, 31, 31, 30, 30, 31, ...
## Resampling results across tuning parameters:
##
##  mtry  RMSE      Rsquared  MAE
##  2      0.2914067  0.4891834  0.2582597
##  5      0.2875561  0.4707543  0.2516205
##  9      0.2845810  0.4611975  0.2435131
##
## RMSE was used to select the optimal model using the smallest value.
## The final value used for the model was mtry = 9.
```

LOG Individual Aphids: Sa



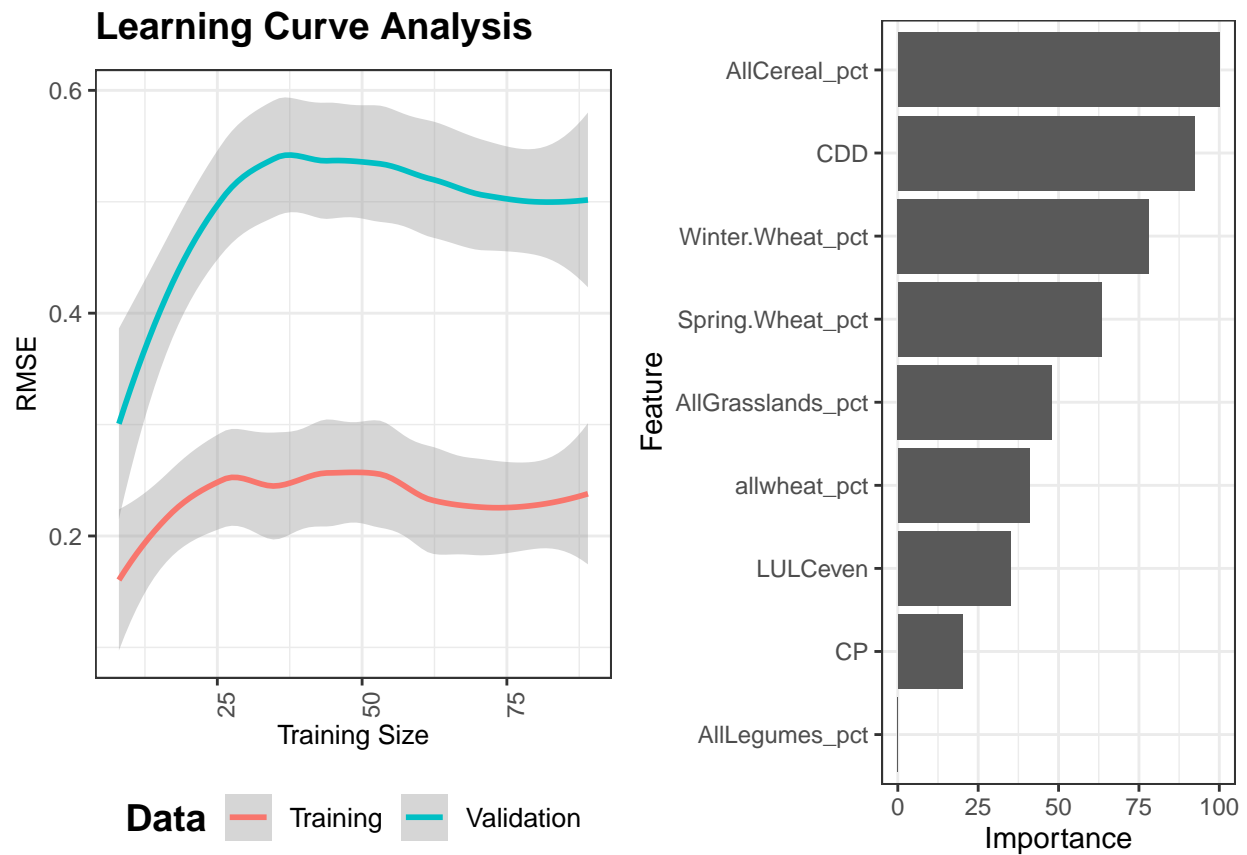
```
## Random Forest
##
## 92 samples
## 9 predictors
##
## No pre-processing
## Resampling: Cross-Validated (10 fold, repeated 1 times)
## Summary of sample sizes: 82, 83, 84, 84, 84, 82, ...
## Resampling results across tuning parameters:
##
##  mtry  RMSE      Rsquared  MAE
##  2     0.3977009  0.3654843  0.3092461
##  5     0.3816767  0.4059289  0.3039471
##  9     0.3822543  0.3997199  0.3096091
##
## RMSE was used to select the optimal model using the smallest value.
## The final value used for the model was mtry = 5.
```

LOG Individual Aphids: Md



```
## Random Forest
##
## 72 samples
## 9 predictors
##
## No pre-processing
## Resampling: Cross-Validated (10 fold, repeated 1 times)
## Summary of sample sizes: 65, 66, 65, 65, 64, 65, ...
## Resampling results across tuning parameters:
##
##  mtry  RMSE      Rsquared  MAE
##  2     0.4259522  0.1084991  0.3563788
##  5     0.4325599  0.1194257  0.3604265
##  9     0.4395631  0.1078876  0.3642582
##
## RMSE was used to select the optimal model using the smallest value.
## The final value used for the model was mtry = 2.
```

LOG Individual Aphids: Mfc



```
## Random Forest
##
## 89 samples
## 9 predictors
##
## No pre-processing
## Resampling: Cross-Validated (10 fold, repeated 1 times)
## Summary of sample sizes: 80, 80, 81, 81, 81, 80, ...
## Resampling results across tuning parameters:
##
##   mtry  RMSE      Rsquared  MAE
##   2     0.5154378  0.07663063  0.4360164
##   5     0.5252403  0.07366646  0.4462455
##   9     0.5282298  0.07834688  0.4468809
##
## RMSE was used to select the optimal model using the smallest value.
## The final value used for the model was mtry = 2.
```