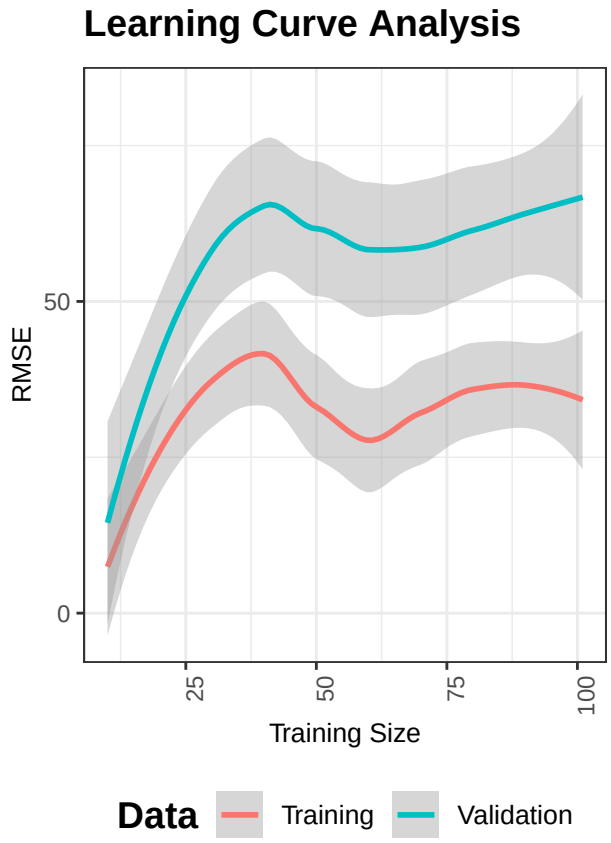
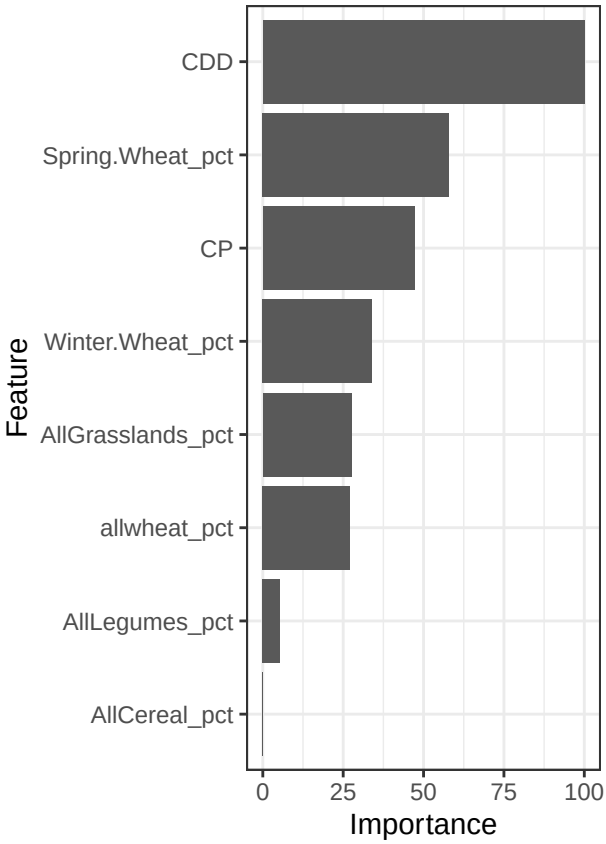
Aphid Modeling Results - Erich Seamon - 8.20.2021

Total Aphids Model

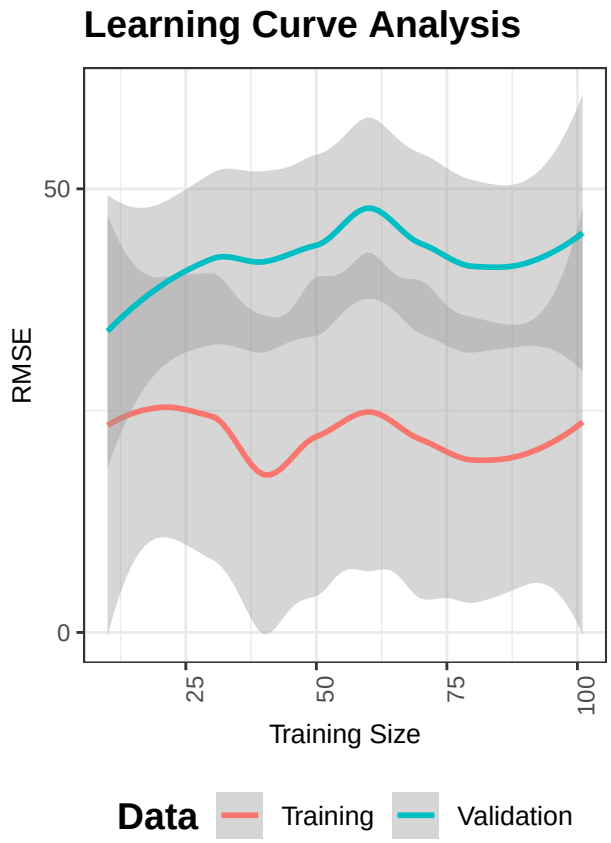


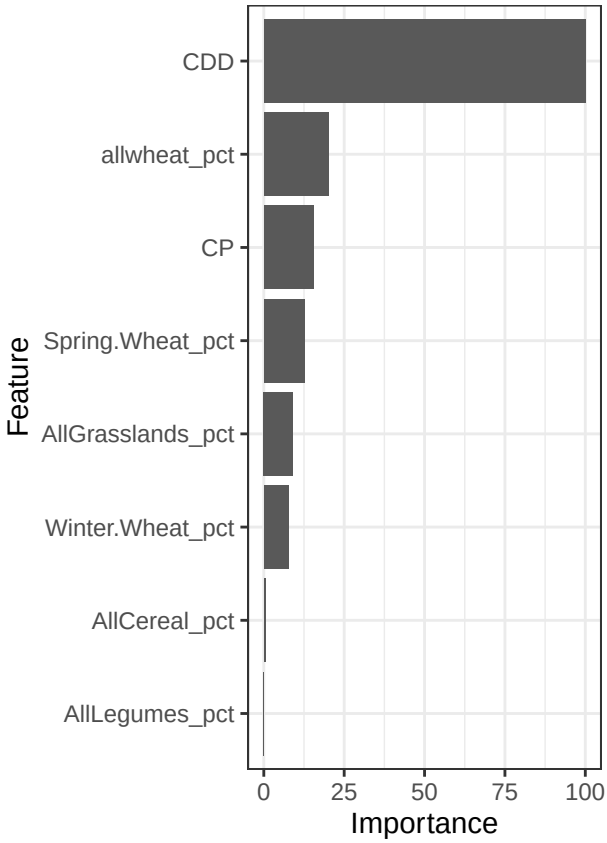



```
## Random Forest
##
## 101 samples
##   8 predictors
##
## No pre-processing
## Resampling: Cross-Validated (10 fold, repeated 1 times)
## Summary of sample sizes: 89, 90, 92, 91, 91, 90, ...
## Resampling results across tuning parameters:
##
##   mtry  RMSE      Rsquared   MAE
##   2     63.73568  0.1811534  47.38910
##   5     65.99397  0.1735441  48.38993
##   8     68.40480  0.1574900  49.77404
##
```

```
## RMSE was used to select the optimal model using the smallest value.
## The final value used for the model was mtry = 2.
```

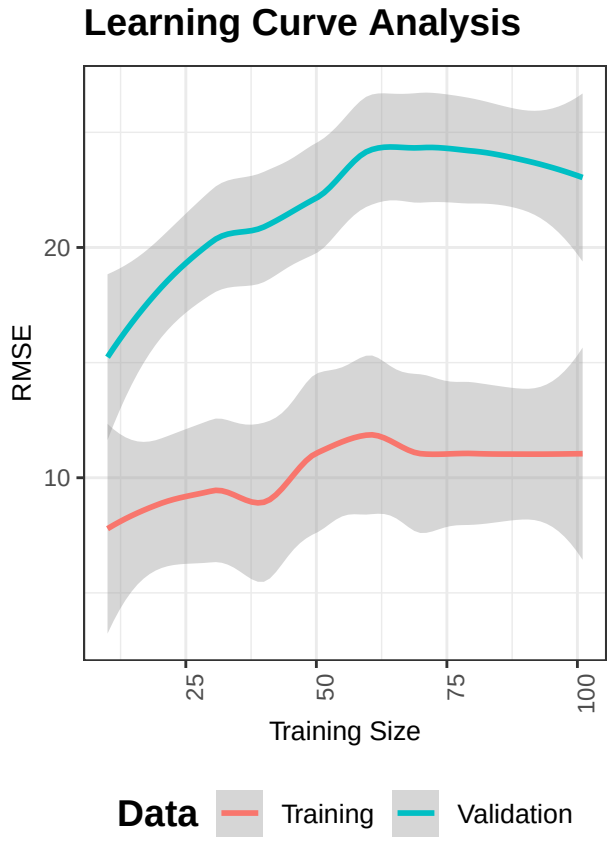
Total Aphids No Mfc Model

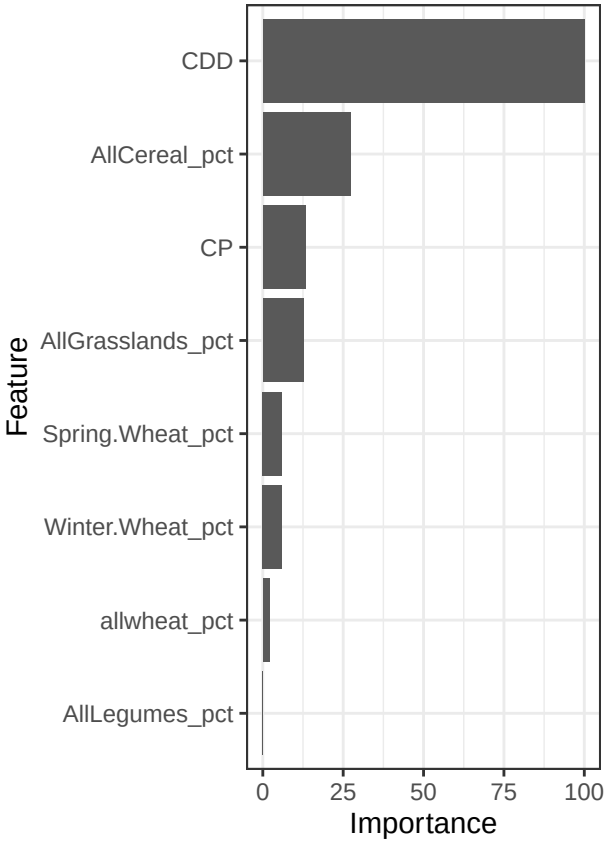





```
## Random Forest
##
## 101 samples
##   8 predictors
##
## No pre-processing
## Resampling: Cross-Validated (10 fold, repeated 1 times)
## Summary of sample sizes: 89, 90, 92, 91, 91, 90, ...
## Resampling results across tuning parameters:
##
##   mtry  RMSE      Rsquared   MAE
##   2     49.33028  0.2563659  36.33553
##   5     49.26247  0.2559647  35.33321
##   8     49.22627  0.2541812  34.64219
##
## RMSE was used to select the optimal model using the smallest value.
## The final value used for the model was mtry = 8.
```

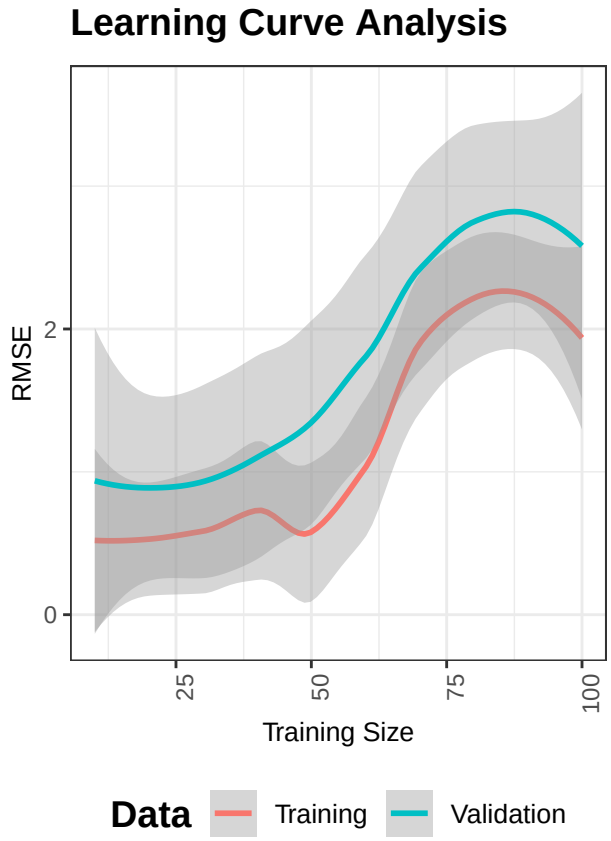
Relative Abundance Mfc Model

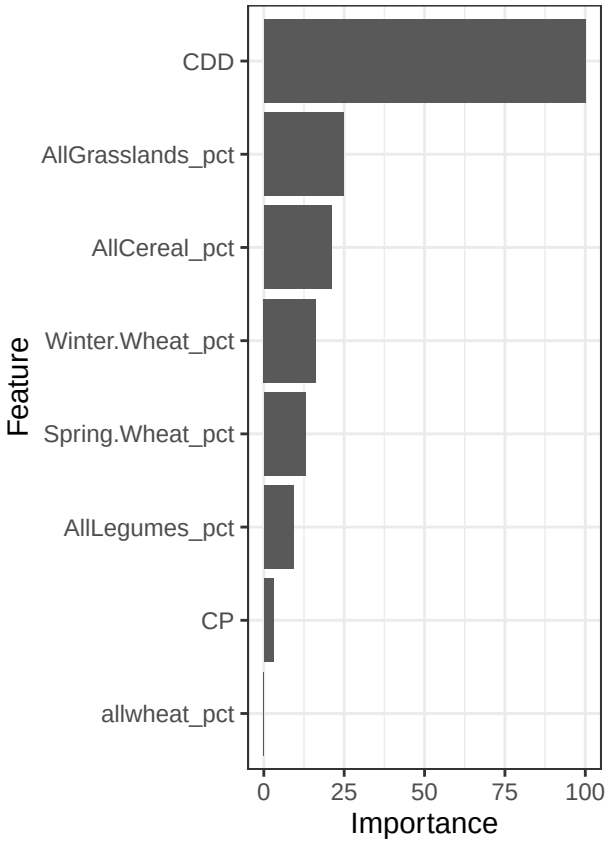





```
## Random Forest
##
## 101 samples
##   8 predictors
##
## No pre-processing
## Resampling: Cross-Validated (10 fold, repeated 1 times)
## Summary of sample sizes: 89, 90, 92, 91, 91, 90, ...
## Resampling results across tuning parameters:
##
##   mtry  RMSE      Rsquared   MAE
##   2     23.75841  0.2415788  19.97434
##   5     24.29576  0.2339301  20.53495
##   8     24.53101  0.2530602  20.70043
##
## RMSE was used to select the optimal model using the smallest value.
## The final value used for the model was mtry = 2.
```

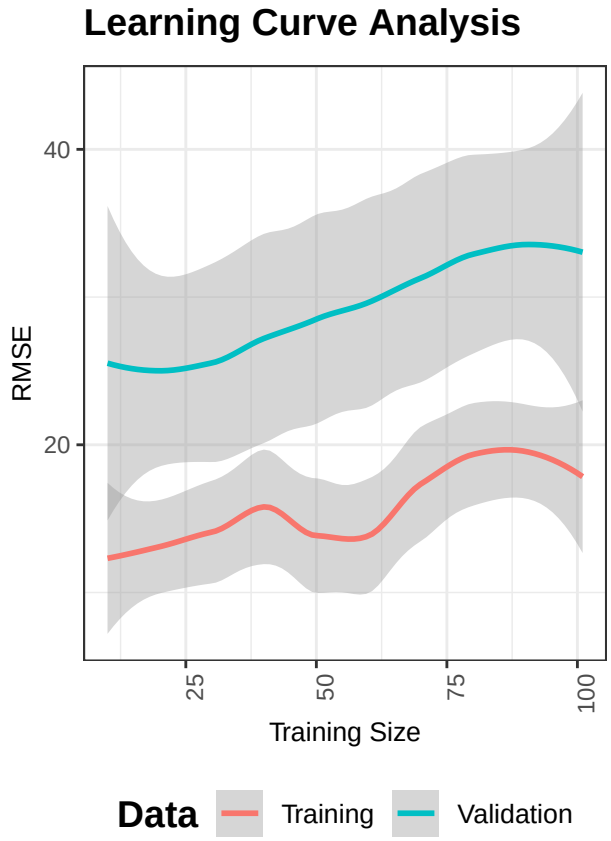
Individual Aphids: Rp

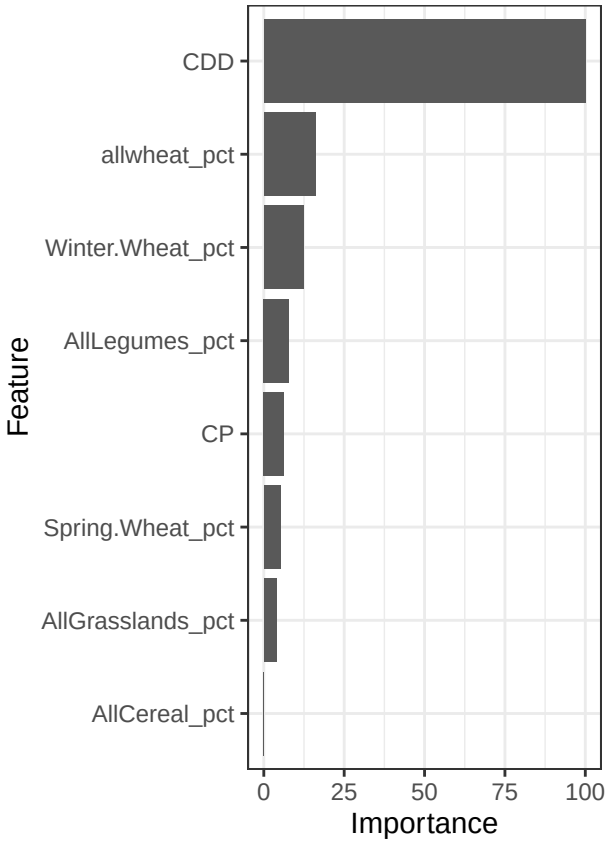





```
## Random Forest
##
## 100 samples
##   8 predictors
##
## No pre-processing
## Resampling: Cross-Validated (10 fold, repeated 1 times)
## Summary of sample sizes: 89, 91, 90, 89, 91, 90, ...
## Resampling results across tuning parameters:
##
##   mtry  RMSE      Rsquared    MAE
##   2     2.431611  0.09381127  1.541037
##   5     2.575098  0.18266845  1.536897
##   8     2.872344  0.16819091  1.625897
##
## RMSE was used to select the optimal model using the smallest value.
## The final value used for the model was mtry = 2.
```

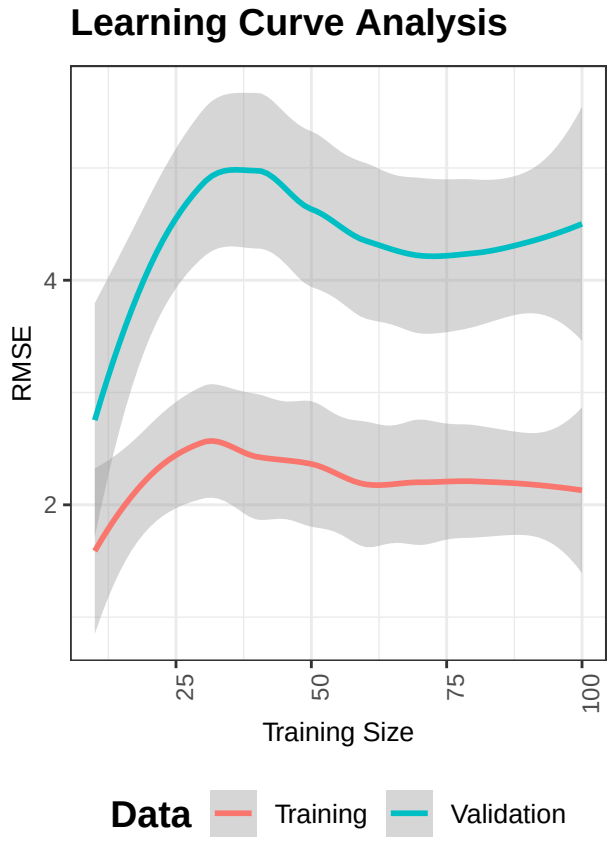
Individual Aphids: Sa

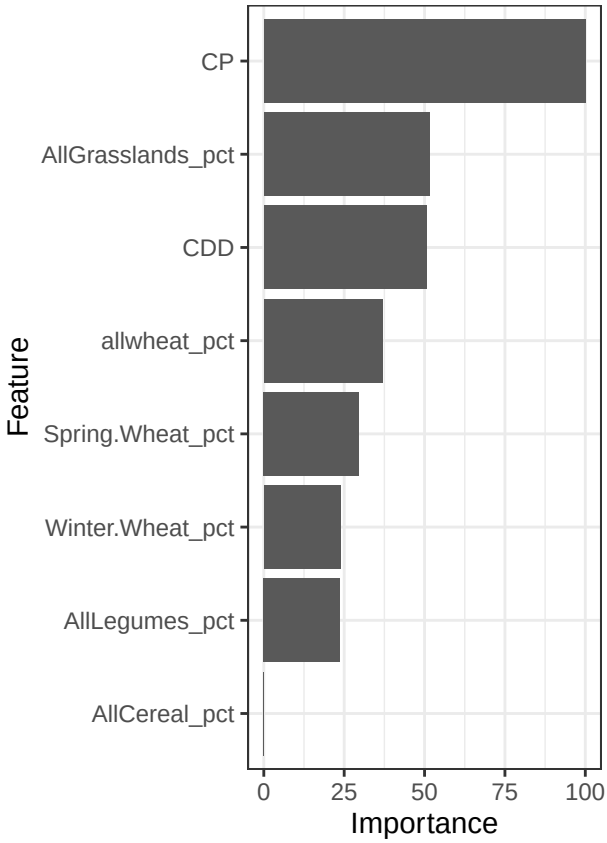





```
## Random Forest
##
## 101 samples
##   8 predictors
##
## No pre-processing
## Resampling: Cross-Validated (10 fold, repeated 1 times)
## Summary of sample sizes: 89, 90, 92, 91, 91, 90, ...
## Resampling results across tuning parameters:
##
##   mtry  RMSE      Rsquared   MAE
##   2     32.39298  0.4948489  21.99353
##   5     31.82151  0.5220429  21.25240
##   8     33.24165  0.5102561  21.71563
##
## RMSE was used to select the optimal model using the smallest value.
## The final value used for the model was mtry = 5.
```

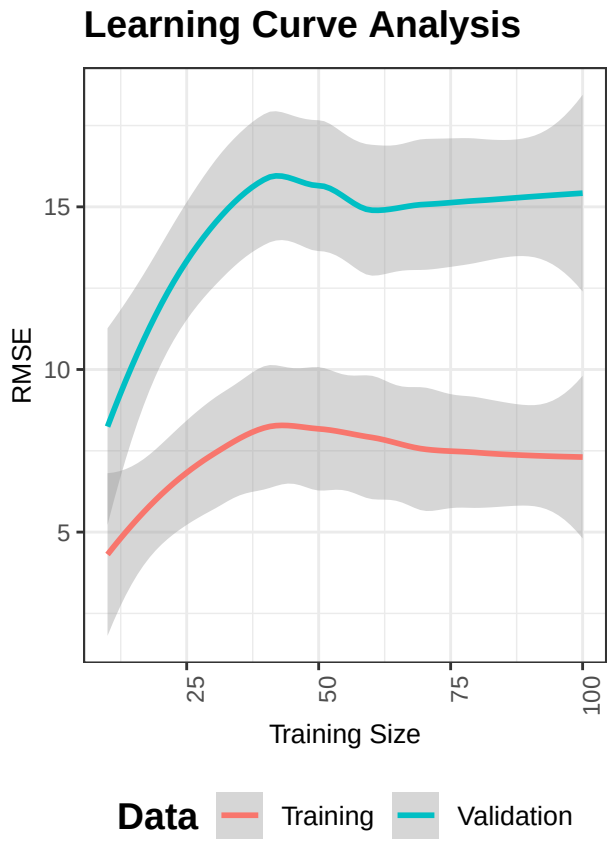
Individual Aphids: Md

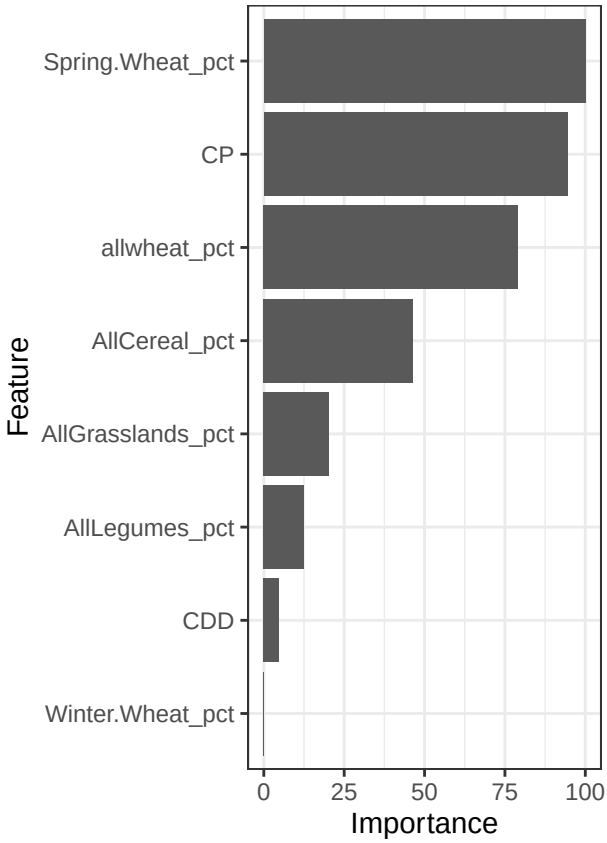





```
## Random Forest
##
## 100 samples
##   8 predictors
##
## No pre-processing
## Resampling: Cross-Validated (10 fold, repeated 1 times)
## Summary of sample sizes: 90, 89, 89, 89, 91, 90, ...
## Resampling results across tuning parameters:
##
##   mtry  RMSE      Rsquared   MAE
##   2     4.277962  0.2618058  3.343674
##   5     4.335352  0.2462028  3.387907
##   8     4.410895  0.2265757  3.438736
##
## RMSE was used to select the optimal model using the smallest value.
## The final value used for the model was mtry = 2.
```

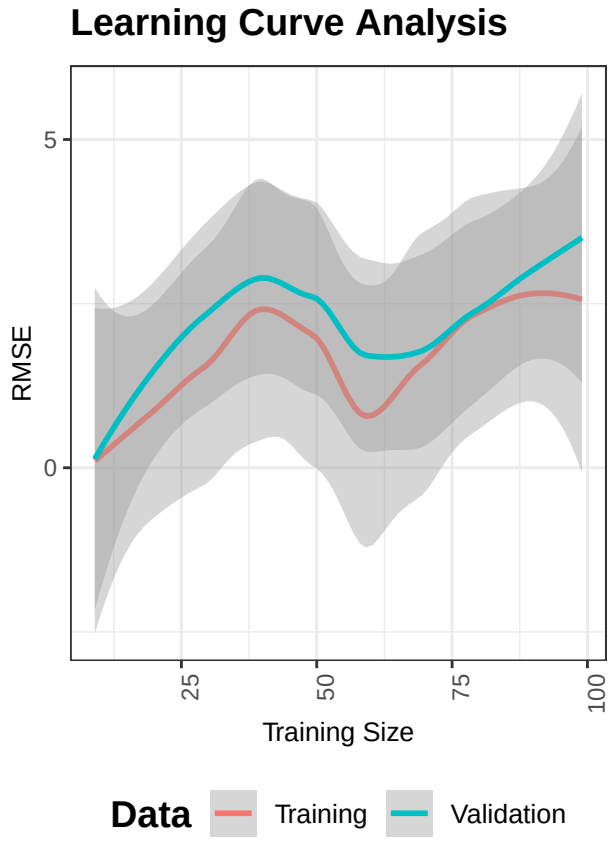
Individual Aphids: Mfc

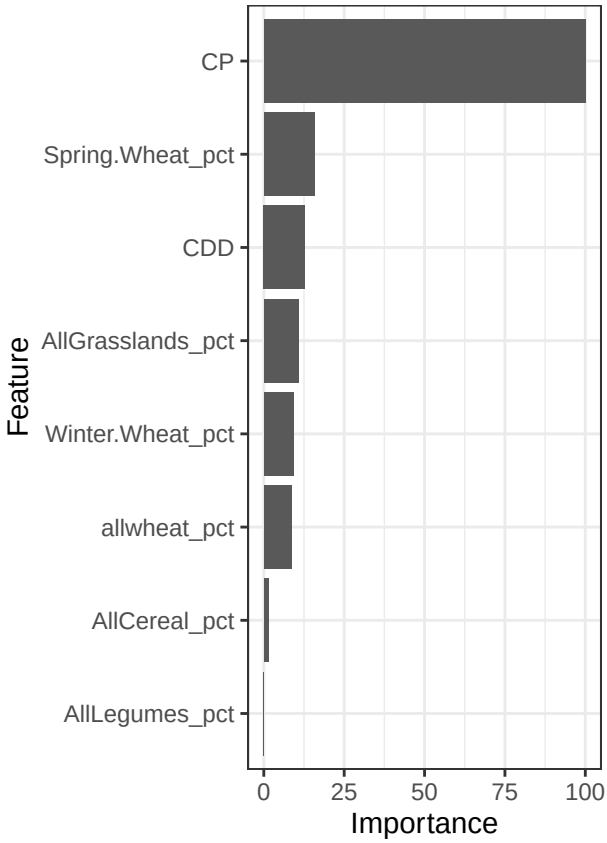





```
## Random Forest
##
## 100 samples
##   8 predictors
##
## No pre-processing
## Resampling: Cross-Validated (10 fold, repeated 1 times)
## Summary of sample sizes: 90, 89, 89, 90, 90, 91, ...
## Resampling results across tuning parameters:
##
##   mtry  RMSE      Rsquared   MAE
##   2     14.57525  0.1221381  11.71662
##   5     15.00601  0.1049100  12.11249
##   8     15.07874  0.1190409  12.22297
##
## RMSE was used to select the optimal model using the smallest value.
## The final value used for the model was mtry = 2.
```

Individual Aphids: Rp






```
## Random Forest
##
## 99 samples
##  8 predictors
##
## No pre-processing
## Resampling: Cross-Validated (10 fold, repeated 1 times)
## Summary of sample sizes: 89, 89, 89, 89, 89, 89, ...
## Resampling results across tuning parameters:
##
##   mtry  RMSE      Rsquared   MAE
##   2     3.267462  0.2959596  1.431210
##   5     3.406572  0.2503583  1.420783
##   8     3.694826  0.2584216  1.461916
##
## RMSE was used to select the optimal model using the smallest value.
## The final value used for the model was mtry = 2.
```