

Lab 9

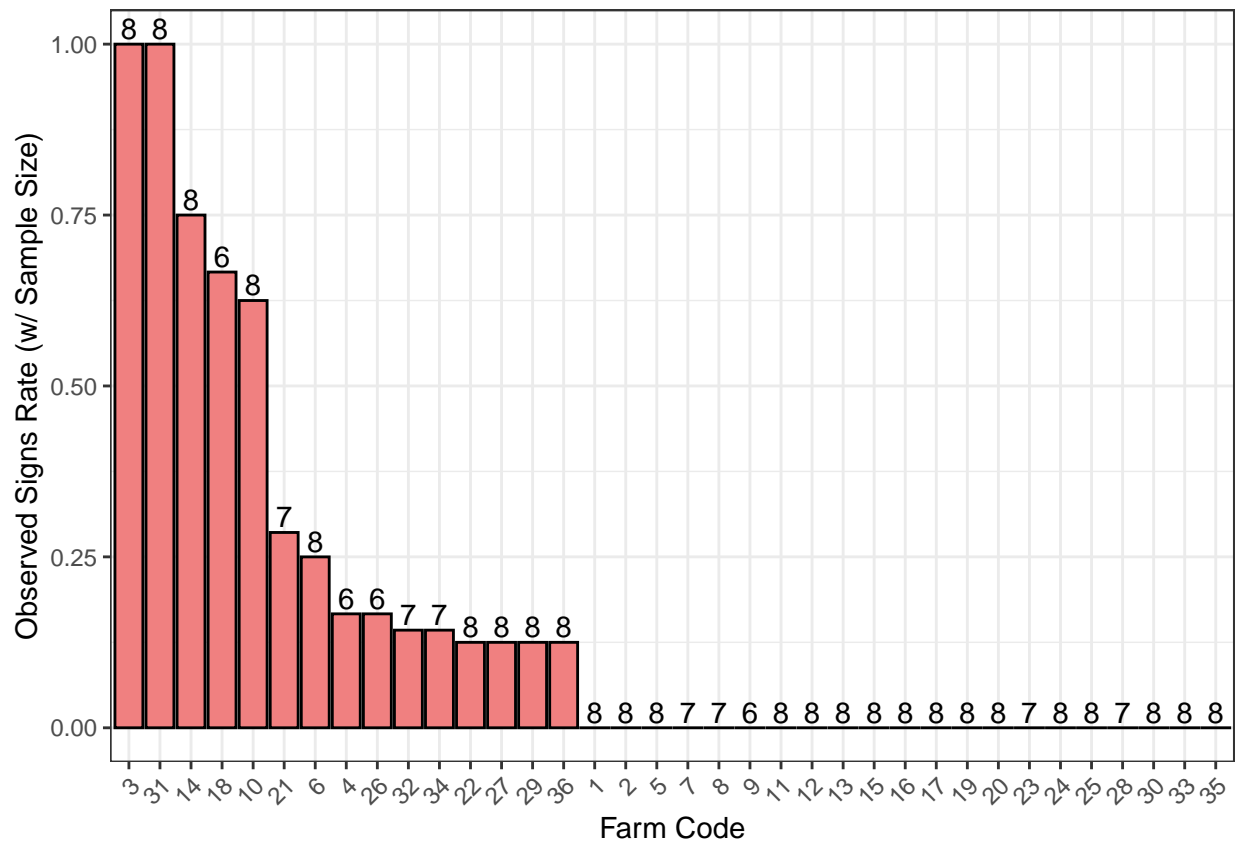
Emily Gentles

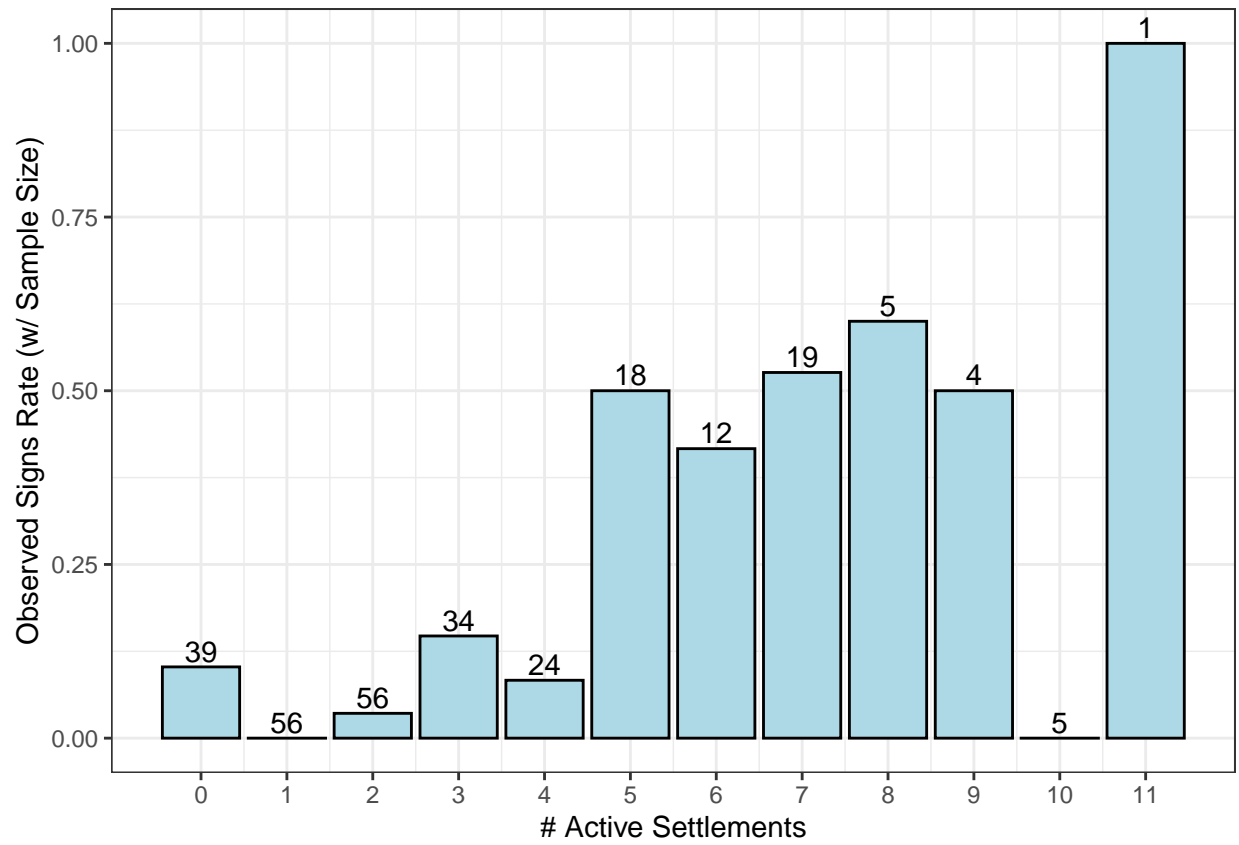
Weiye Liu

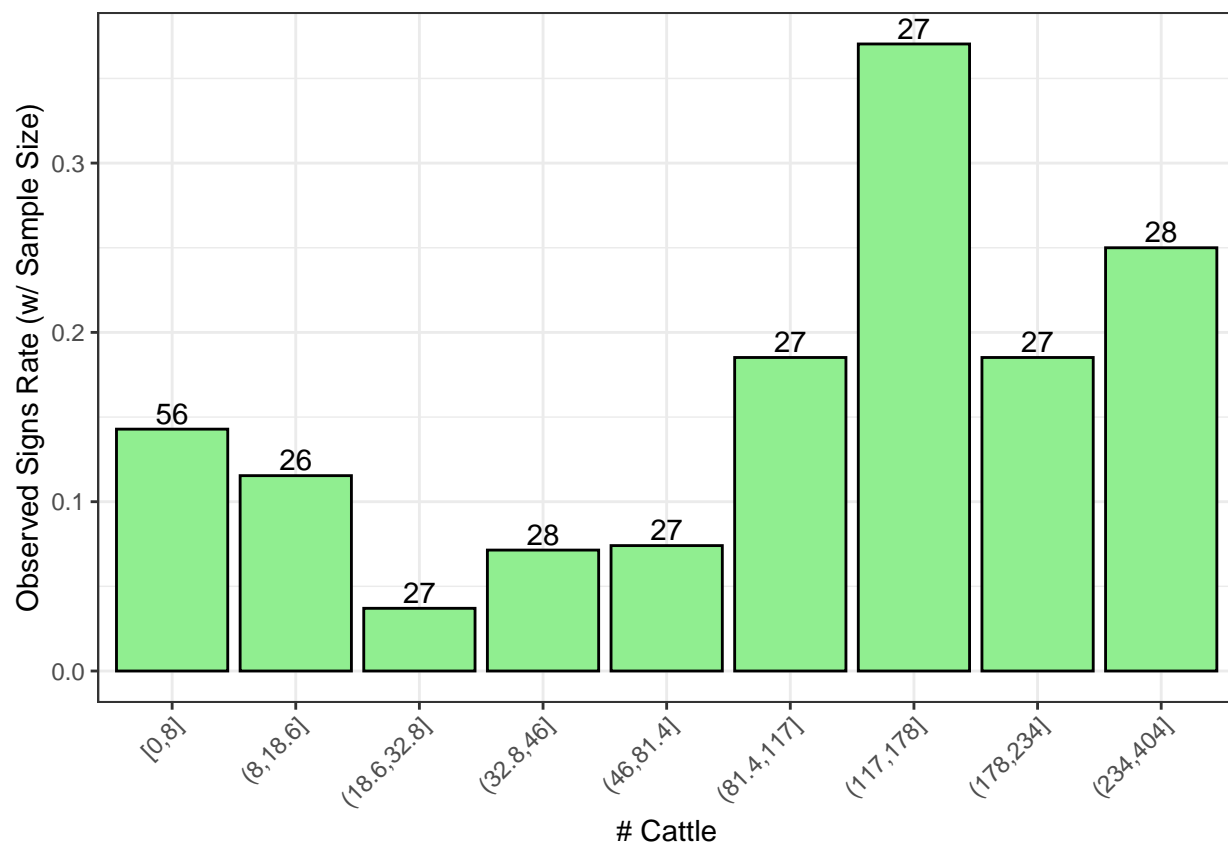
Jack McCarthy

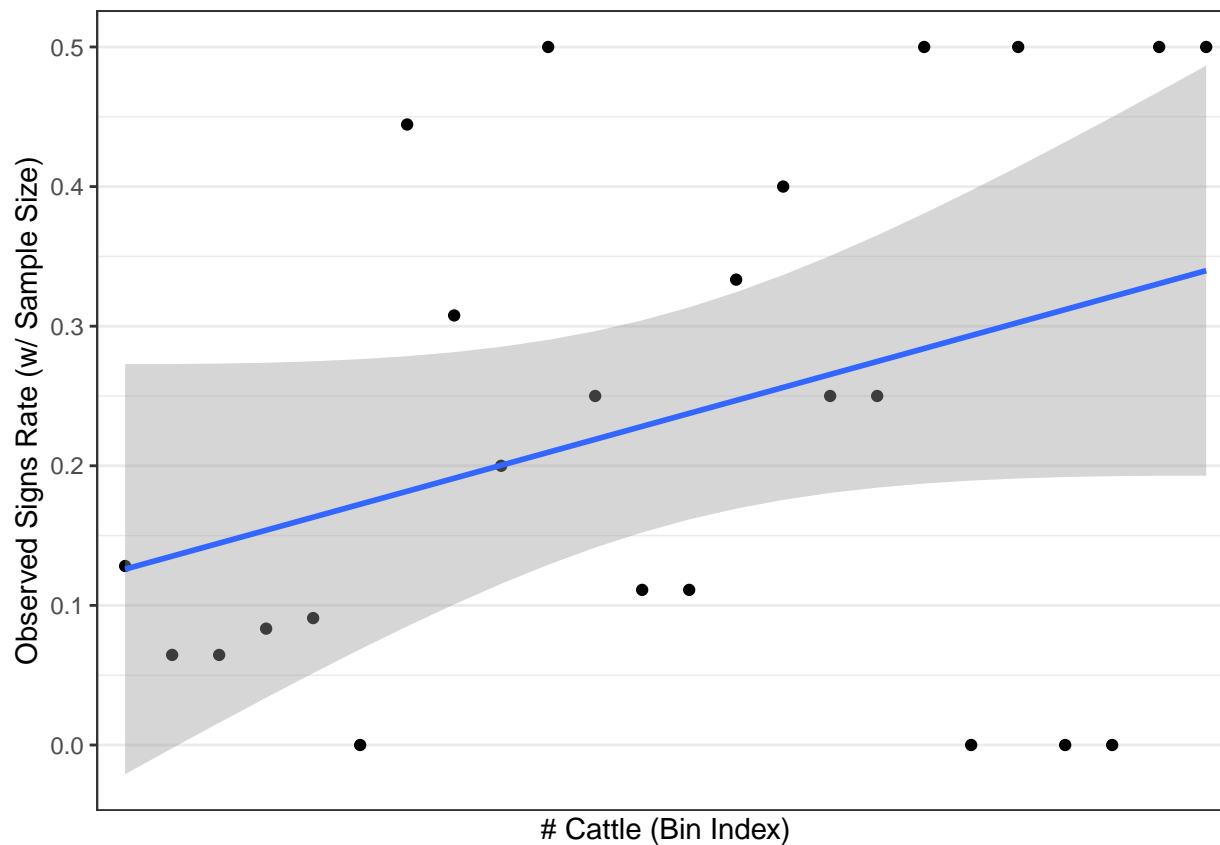
Qinzhe Wang

10/28/2021









Indicator	Accuracy
accessible_cattle_house_present	0.3590
accessible_feed_present	0.2491
grass_silage	0.6154
cereal_silage	0.6740
hay_straw	0.3516
cereal_grains	0.5348
concentrates	0.5568
proteinblocks	0.8022
sugarbeet	0.7656
vegetables	0.7802
molasses	0.6703

Confusion Matrix and Statistics

##

Reference

Prediction 0 1

0 219 43

1 11 0

##

Accuracy : 0.8022

95% CI : (0.7499, 0.8478)

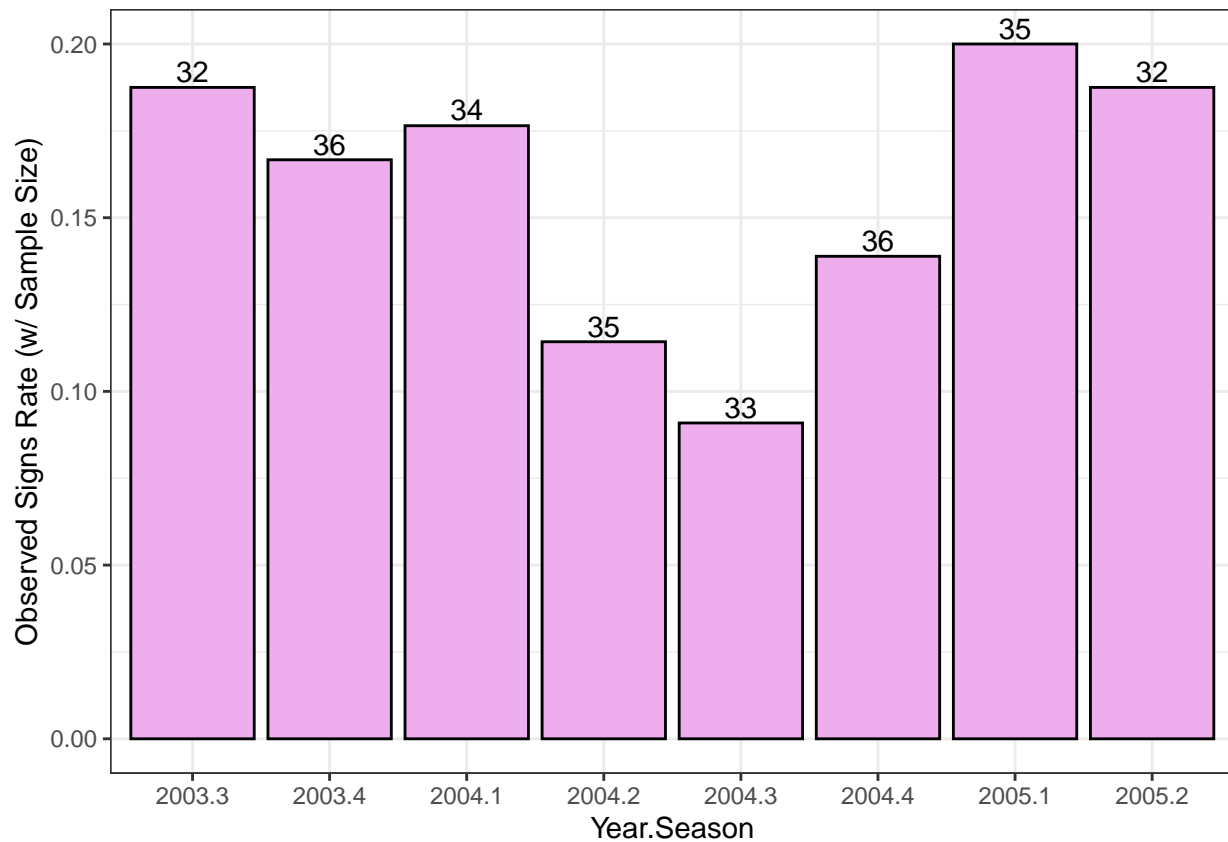
No Information Rate : 0.8425

P-Value [Acc > NIR] : 0.969

##

```
##          Kappa : -0.0686
##
## Mcnemar's Test P-Value : 2.459e-05
##
##          Sensitivity : 0.9522
##          Specificity : 0.0000
##          Pos Pred Value : 0.8359
##          Neg Pred Value : 0.0000
##          Prevalence : 0.8425
##          Detection Rate : 0.8022
##          Detection Prevalence : 0.9597
##          Balanced Accuracy : 0.4761
##
##          'Positive' Class : 0
##
```

The accuracy is good for some indicators because most observations are 0 for the response. The confusion matrix shows that the indicators do not have as much predictive power as it may seem from the accuracy alone.



```
## Generalized linear mixed model fit by maximum likelihood (Laplace
## Approximation) [glmerMod]
## Family: binomial ( logit )
## Formula:
## signs_in_yard ~ no_active_setts_in_fields + no_cattle_in_buildings_yard +
## hay_straw + (1 | farm_code_numeric)
```

```

## Data: data
##
##      AIC      BIC   logLik deviance df.resid
##    158.7    176.8    -74.4    148.7      268
##
## Scaled residuals:
##      Min       1Q   Median       3Q      Max
## -1.7087 -0.2284 -0.1155 -0.0762  5.5448
##
## Random effects:
##   Groups             Name             Variance Std.Dev.
## farm_code_numeric (Intercept) 4.855      2.203
## Number of obs: 273, groups: farm_code_numeric, 36
##
## Fixed effects:
##
##              Estimate Std. Error z value Pr(>|z|)
## (Intercept)      -4.696519   0.979670  -4.794 1.64e-06 ***
## no_active_setts_in_fields    0.482298   0.147213   3.276 0.00105 **
## no_cattle_in_buildings_yard  0.005102   0.003151   1.619 0.10539
## hay_straw          -0.797986   0.592549  -1.347 0.17808
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Correlation of Fixed Effects:
##              (Intr) n_ctv___ n_ctt___
## n_ctv_stt__ -0.578
## n_cttl_n_b_ -0.313  0.007
## hay_straw   -0.306 -0.071  -0.136

## $farm_code_numeric

```

farm_code_numeric

