

Lab 9

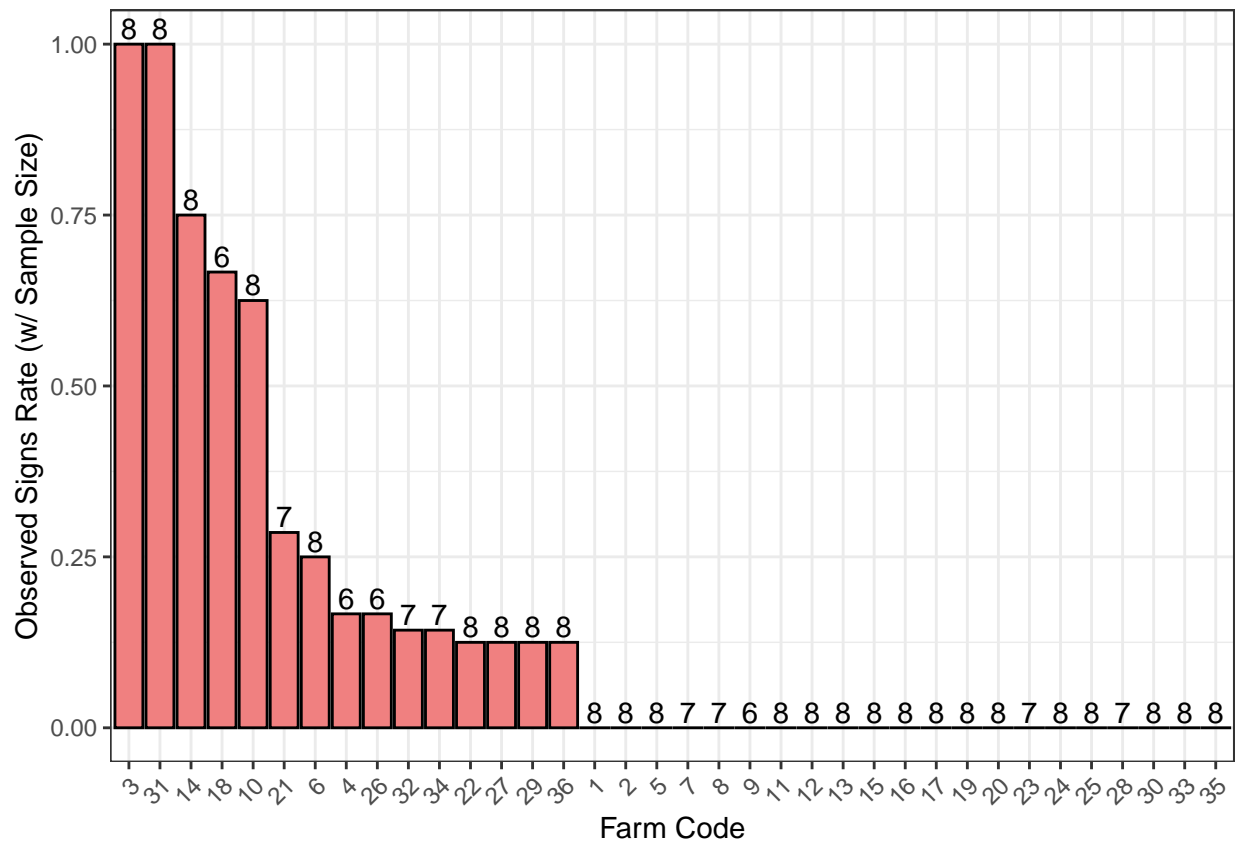
Emily Gentles

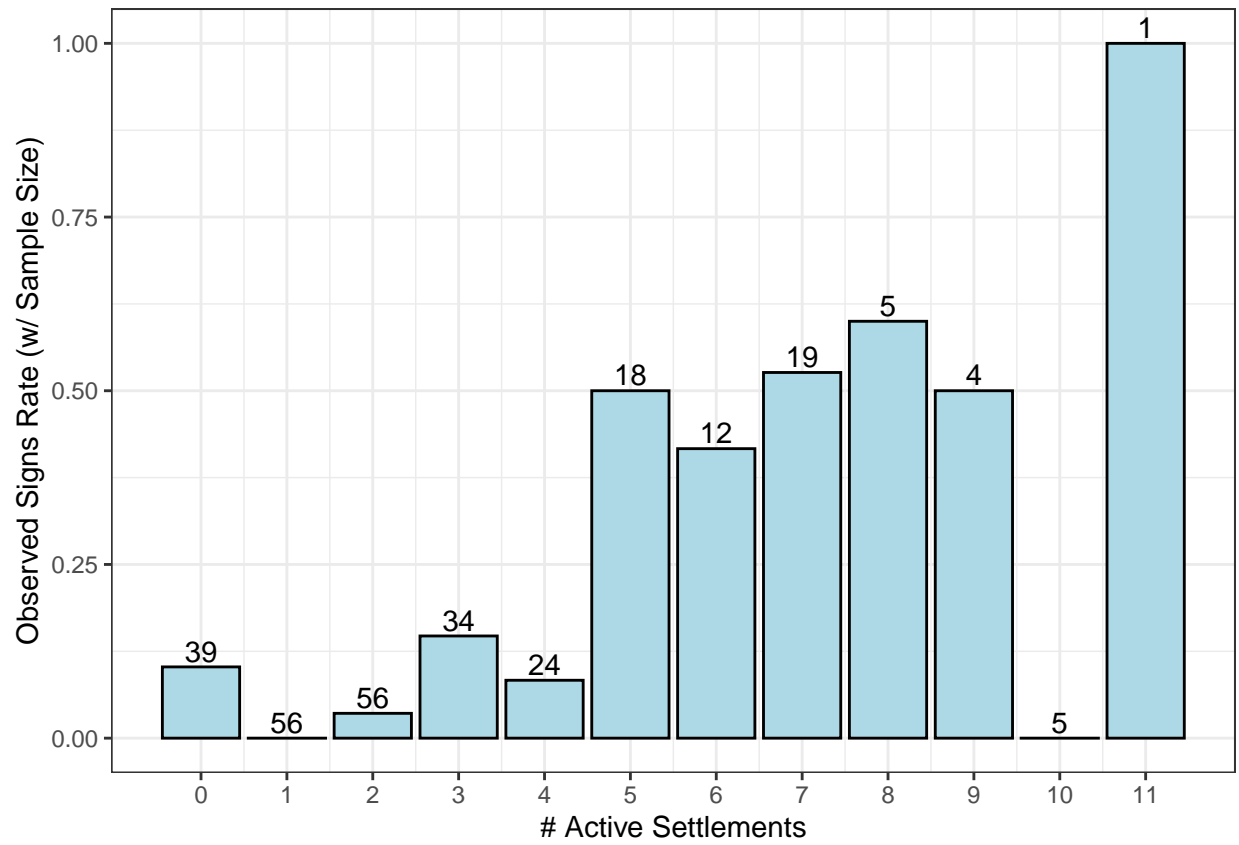
Weiye Liu

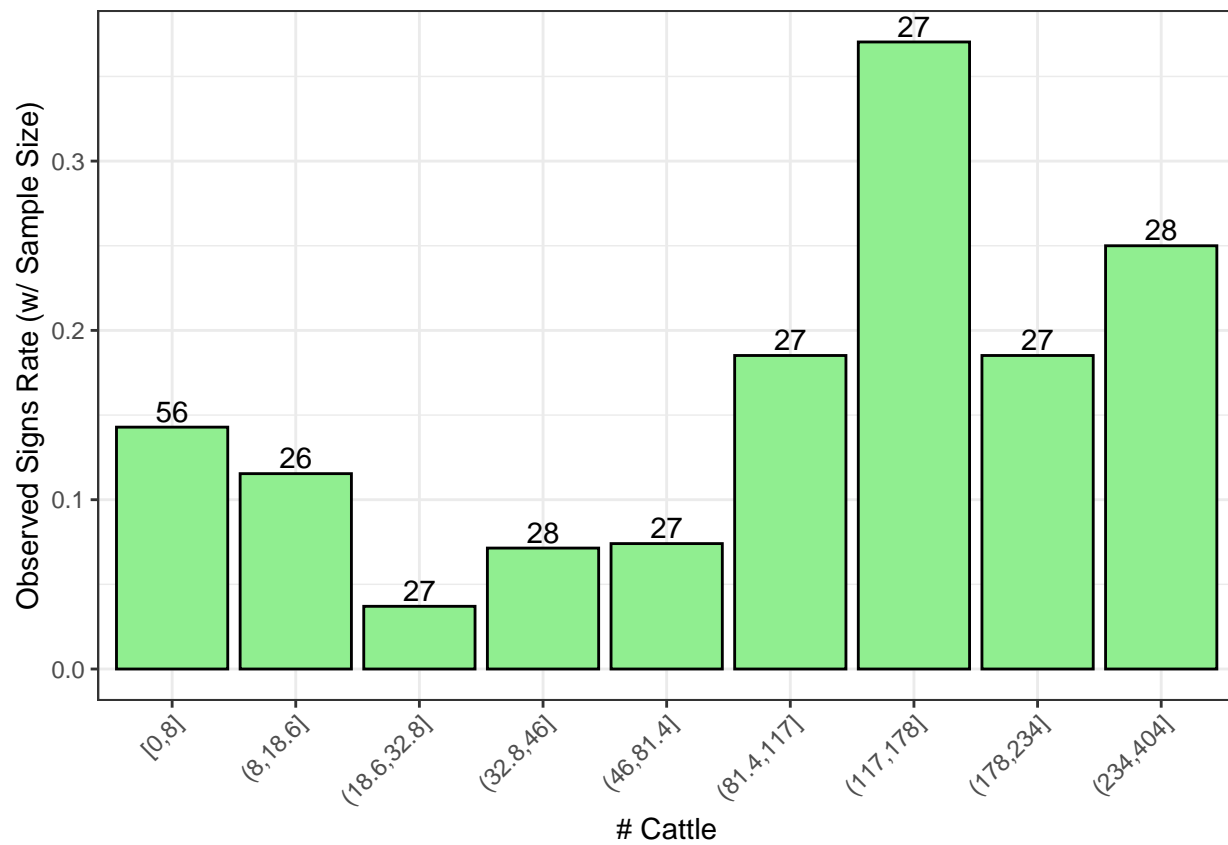
Jack McCarthy

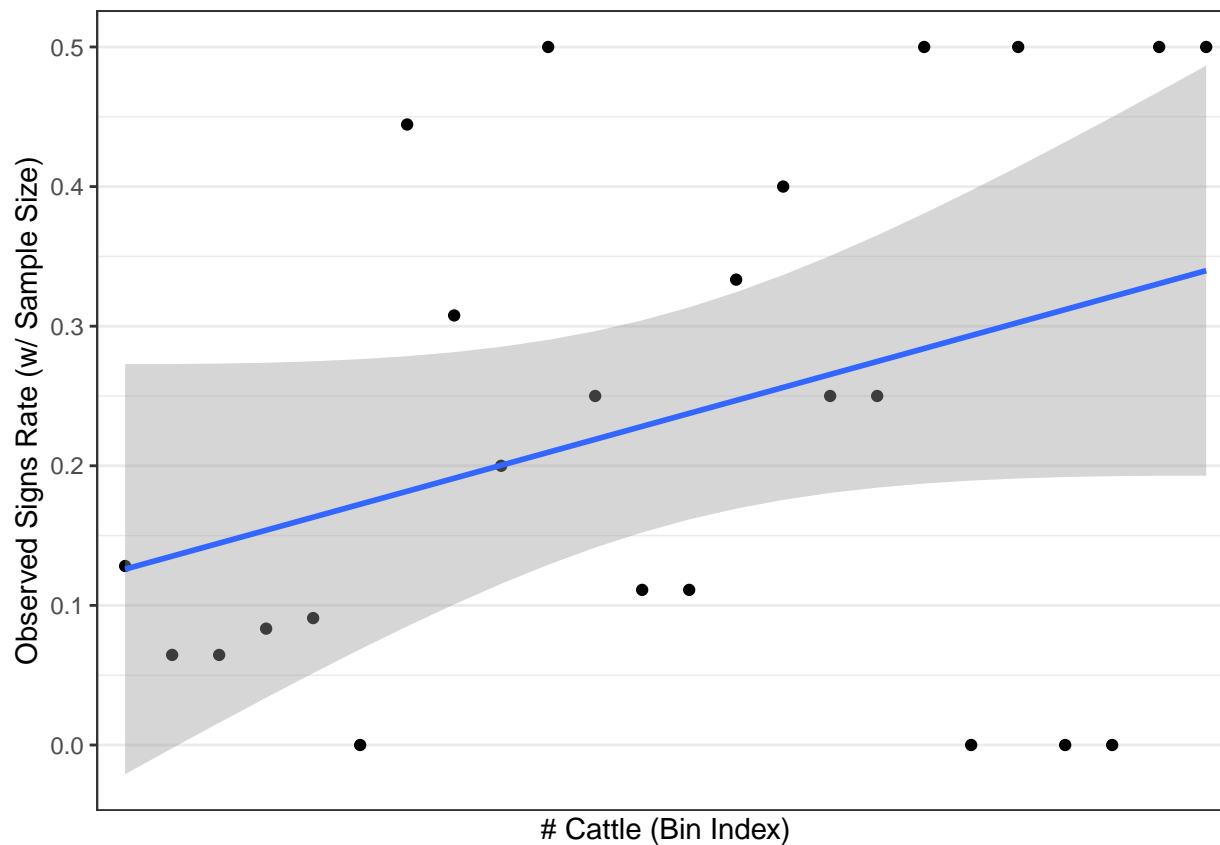
Qinzhe Wang

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)

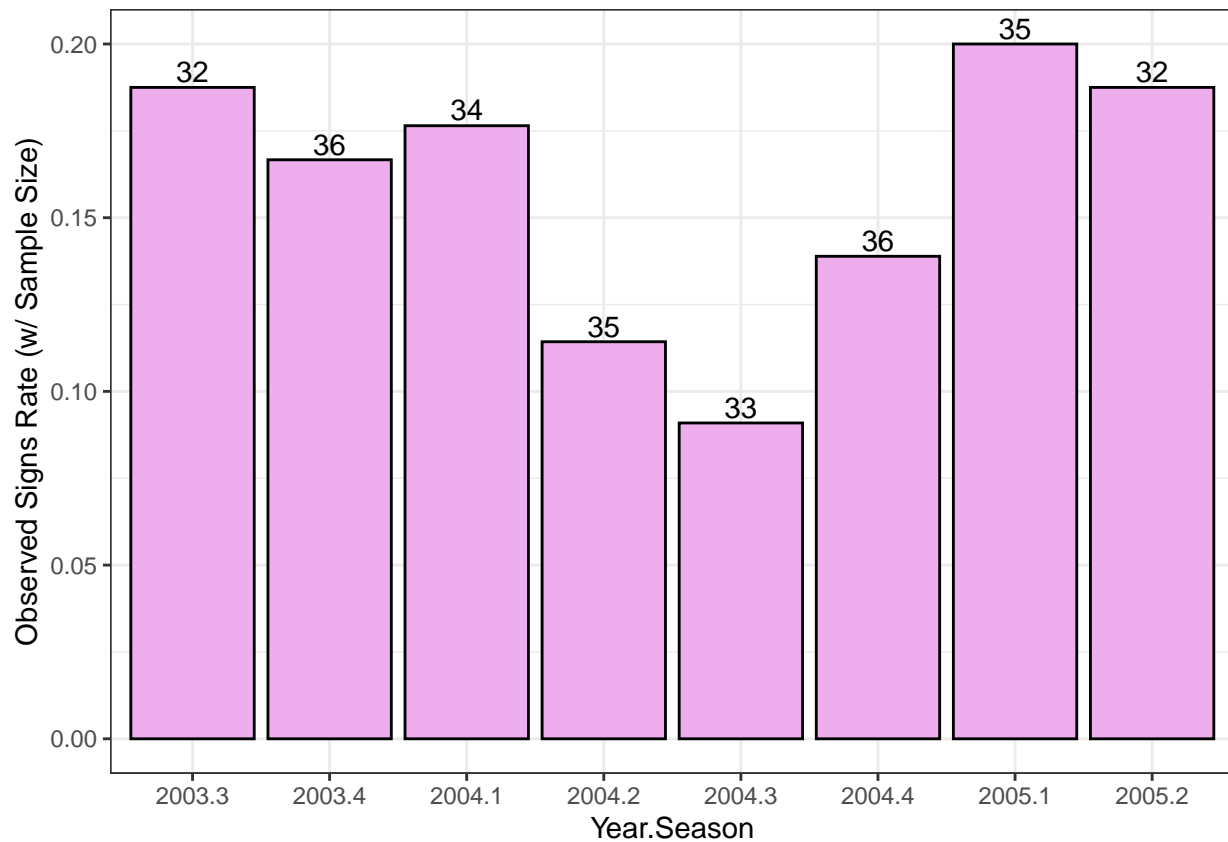
No Information Rate : 0.8425

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_cattle_in_buildings_yard + hay_straw + (1 |
## farm_code_numeric)
## Data: data
```

```

##
##      AIC      BIC   logLik deviance df.resid
##    167.1    181.5    -79.5    159.1      269
##
## Scaled residuals:
##      Min       1Q   Median       3Q      Max
## -1.7244 -0.2148 -0.1071 -0.0841  3.7965
##
## Random effects:
##   Groups             Name             Variance Std.Dev.
## farm_code_numeric (Intercept)  8.903      2.984
## Number of obs: 273, groups: farm_code_numeric, 36
##
## Fixed effects:
##
##              Estimate Std. Error z value Pr(>|z|)
## (Intercept)    -3.842785   1.092110  -3.519 0.000434 ***
## no_cattle_in_buildings_yard  0.005796   0.003291   1.761 0.078247 .
## hay_straw      -0.559948   0.587095  -0.954 0.340206
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Correlation of Fixed Effects:
##              (Intr) n_c___
## n_cttl_n_b_  -0.344
## hay_straw    -0.340 -0.117

```