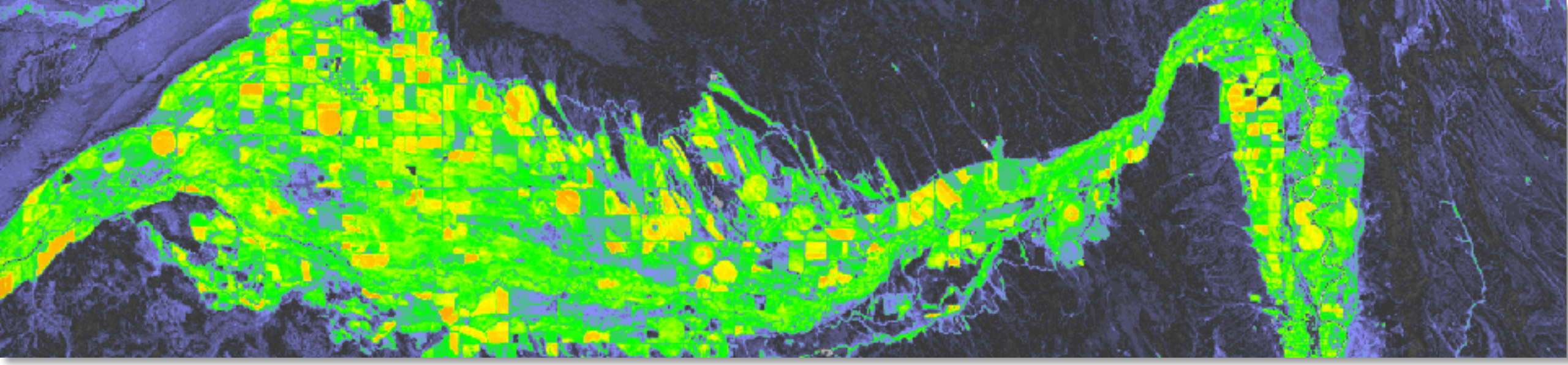


BARLEY BRAIN

PREDICTING THE FUTURE OF YOUR FIELD!

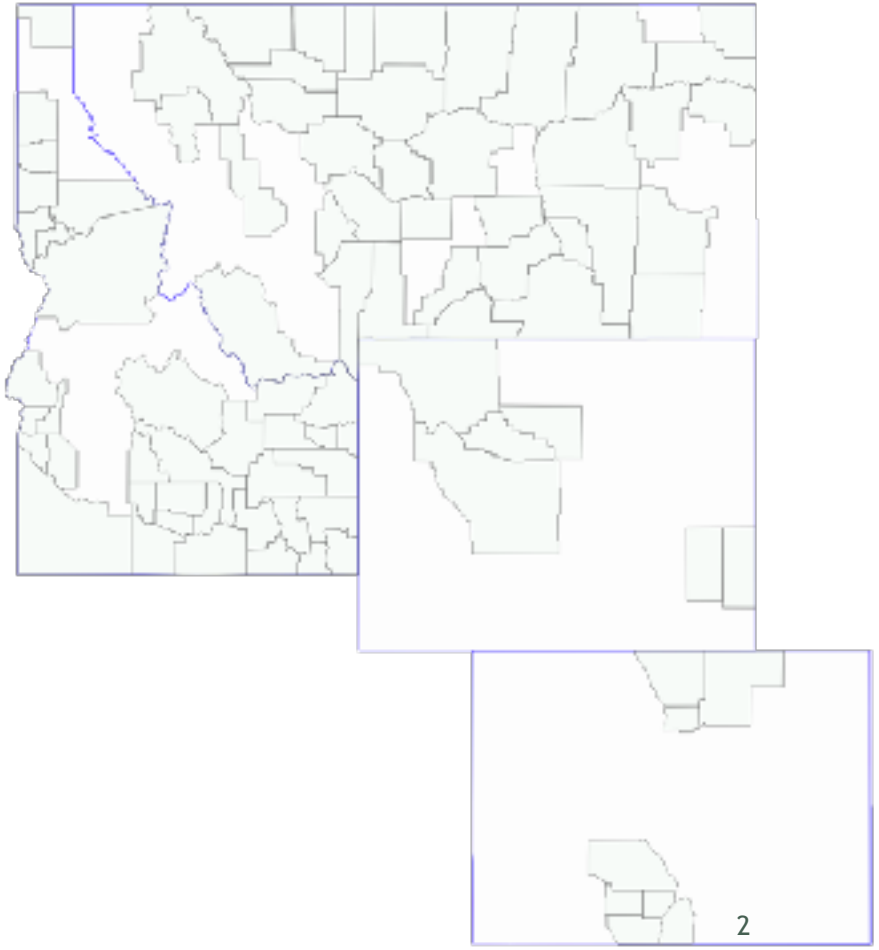
Robert Wade

March 2017

INTRO

What is Barley Brain

Barley Brain is a computer model to forecast regional barley yields in Colorado, Wyoming, Idaho and Montana.

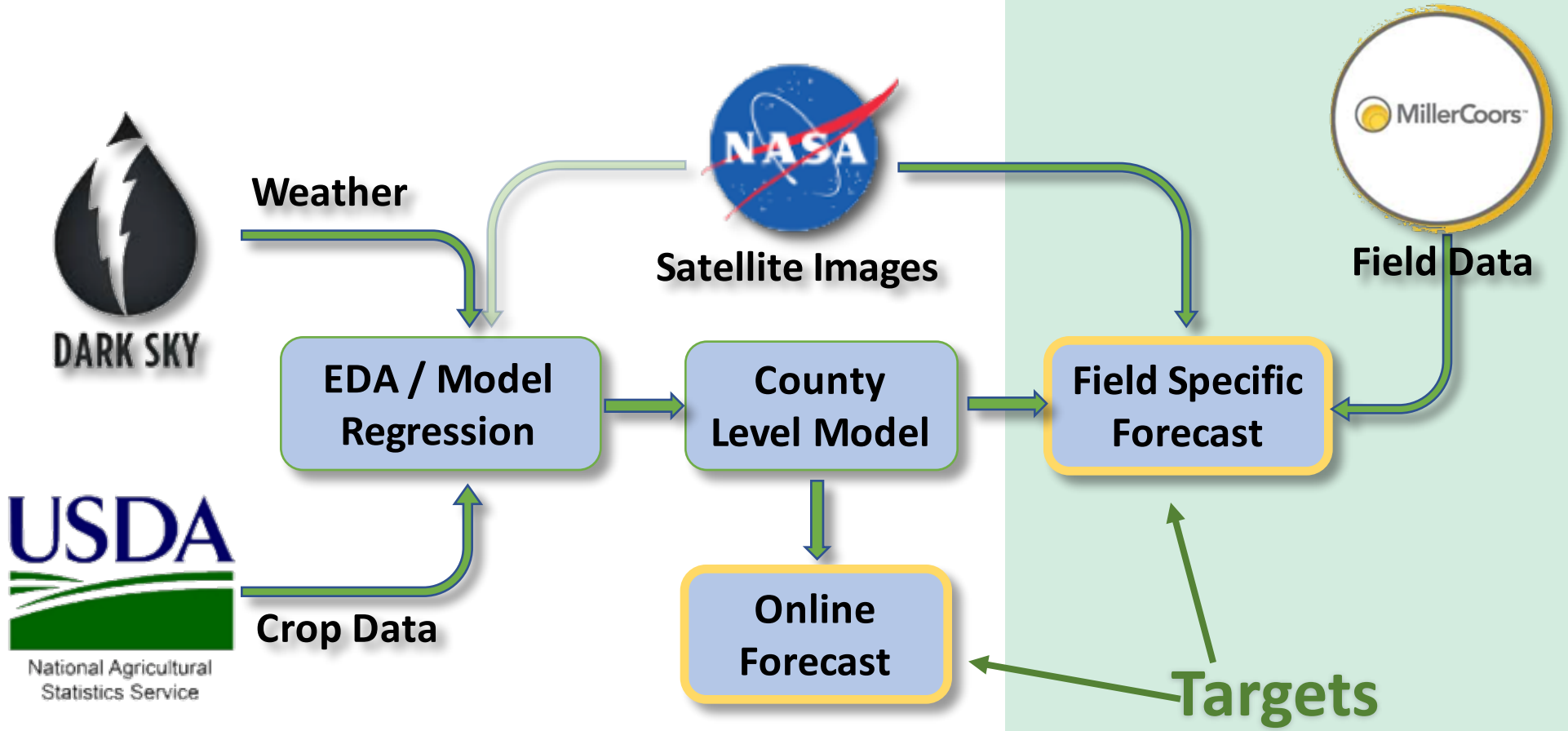


The model aggregates crop information, historic weather, and reported yield from 2010 to present to forecast future yields on a county basis

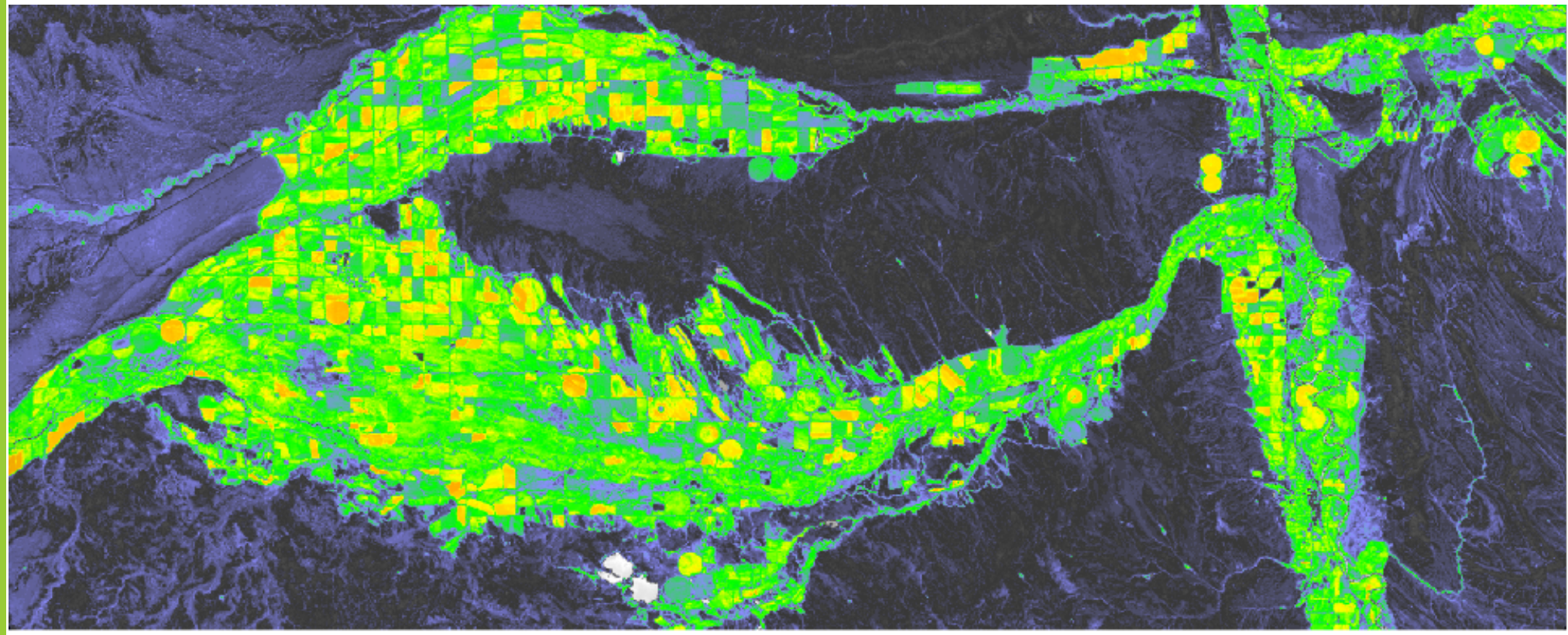
Process

Barley Brain Public

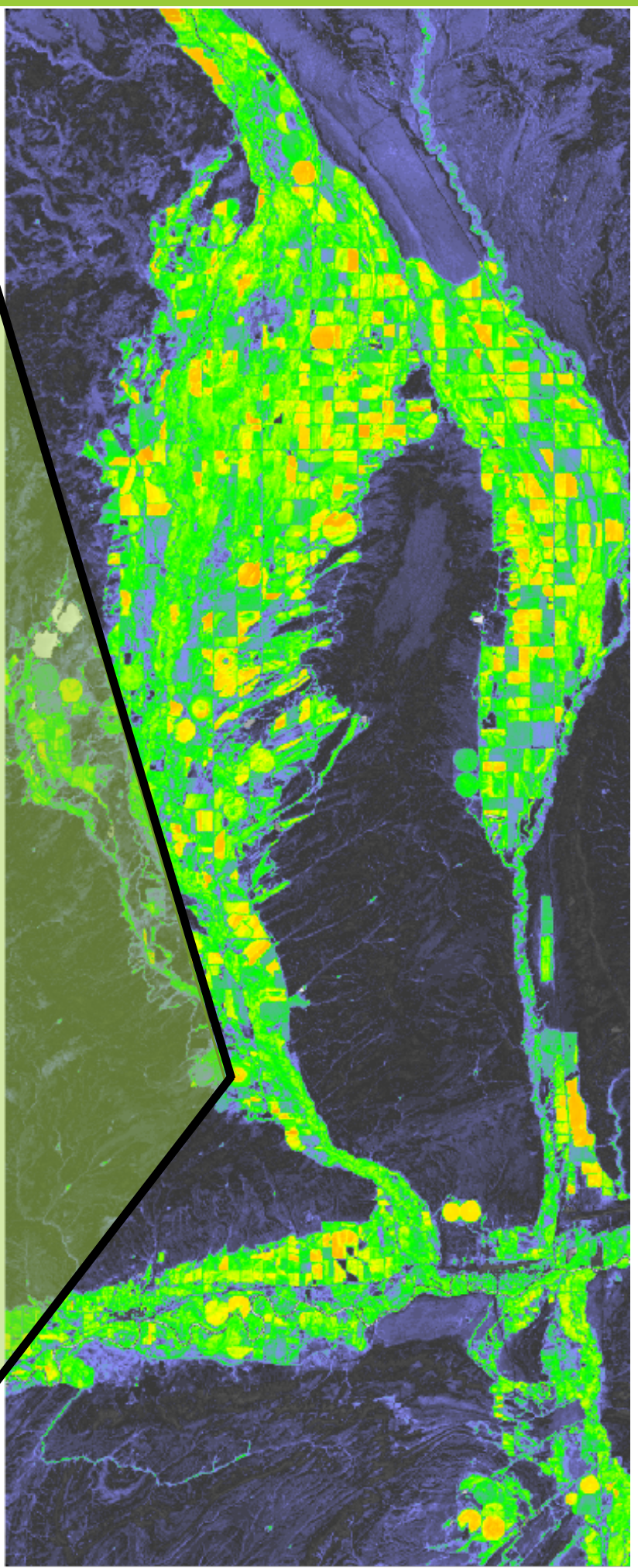
Private



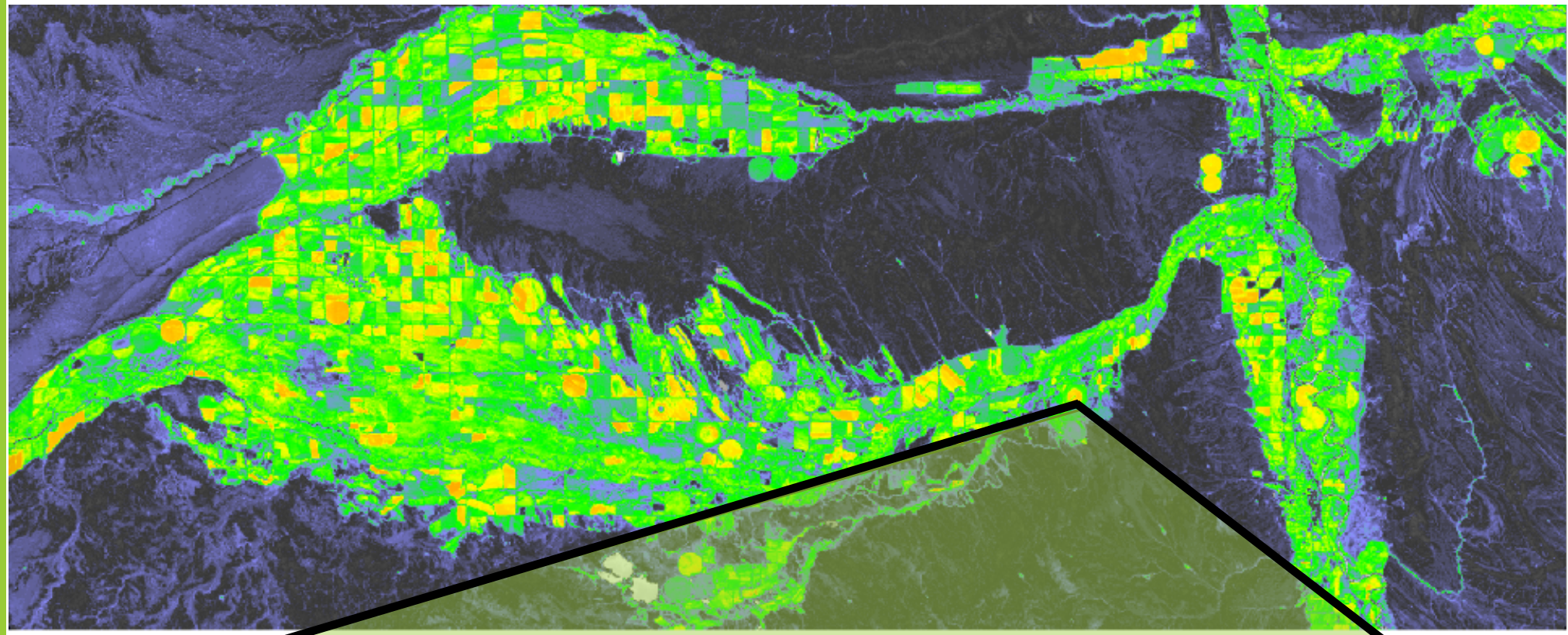
Satellites

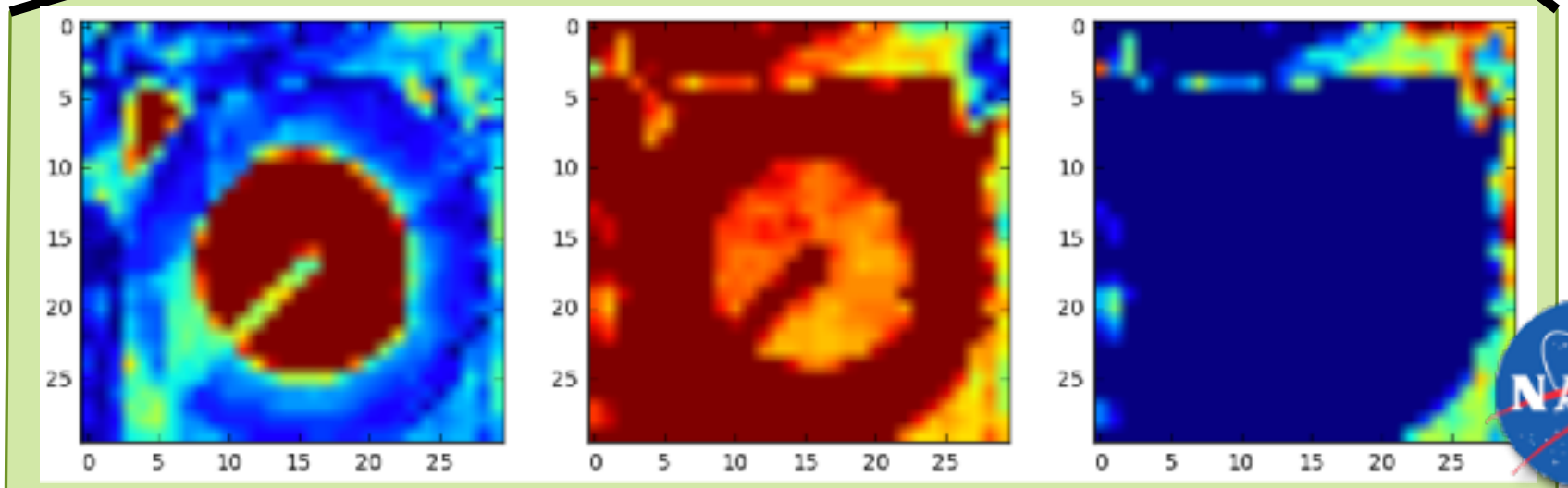


Satellites



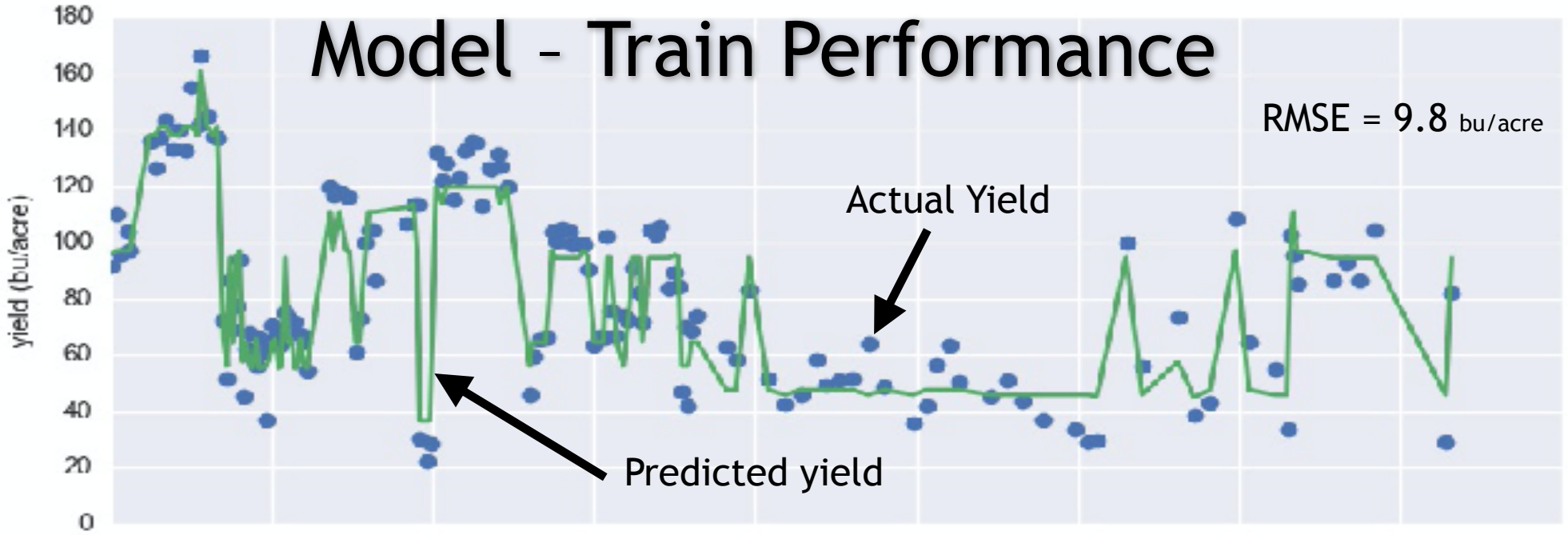
Satellites





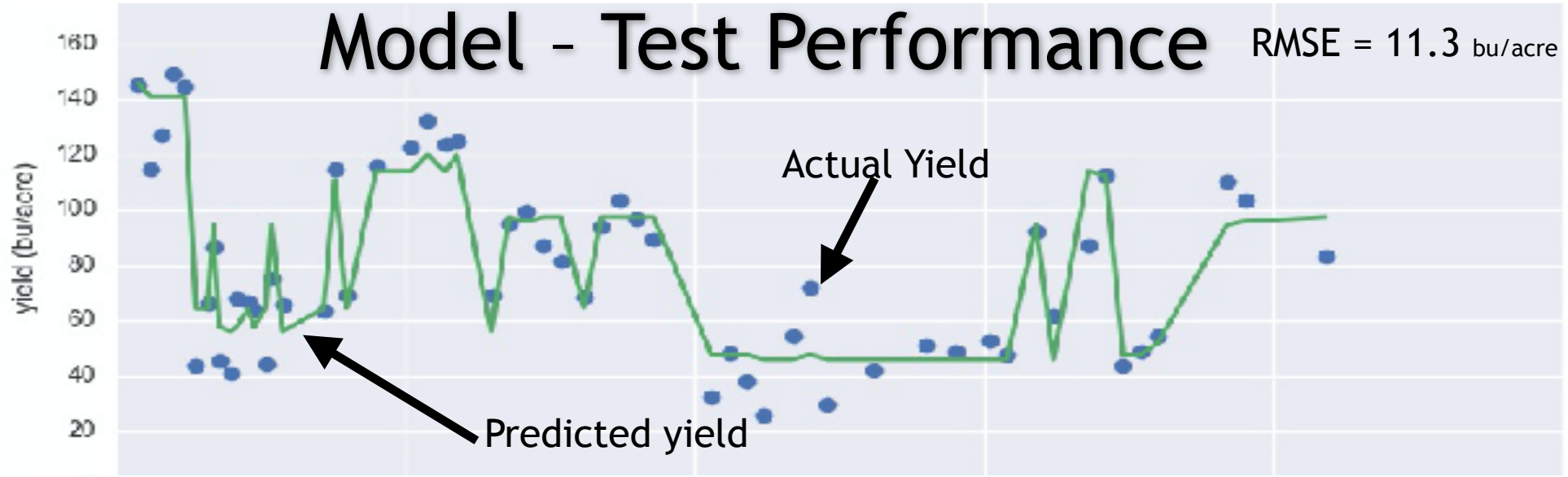
Results

Model - Train Performance



Results

Model – Train Performance
RMSE = 9.8 bu/acre
yield (bu/acre)
180
160
140
120
100
80
60
40
20
0


Model – Test Performance
RMSE = 11.3 bu/acre
yield (bu/acre)
160
140
120
100
80
60
40
20
Actual Yield
Predicted yield

Thanks!

Contact Information

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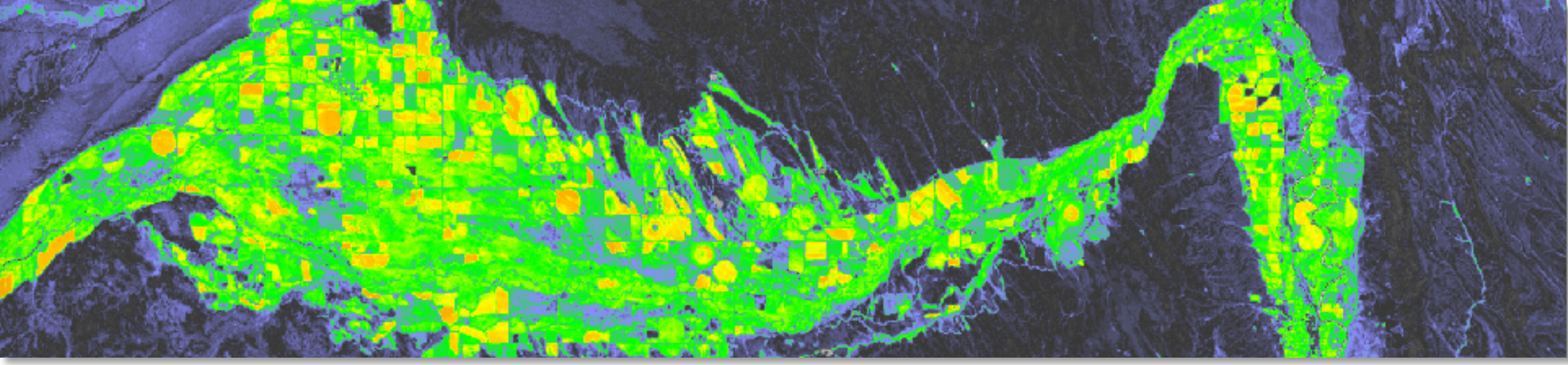
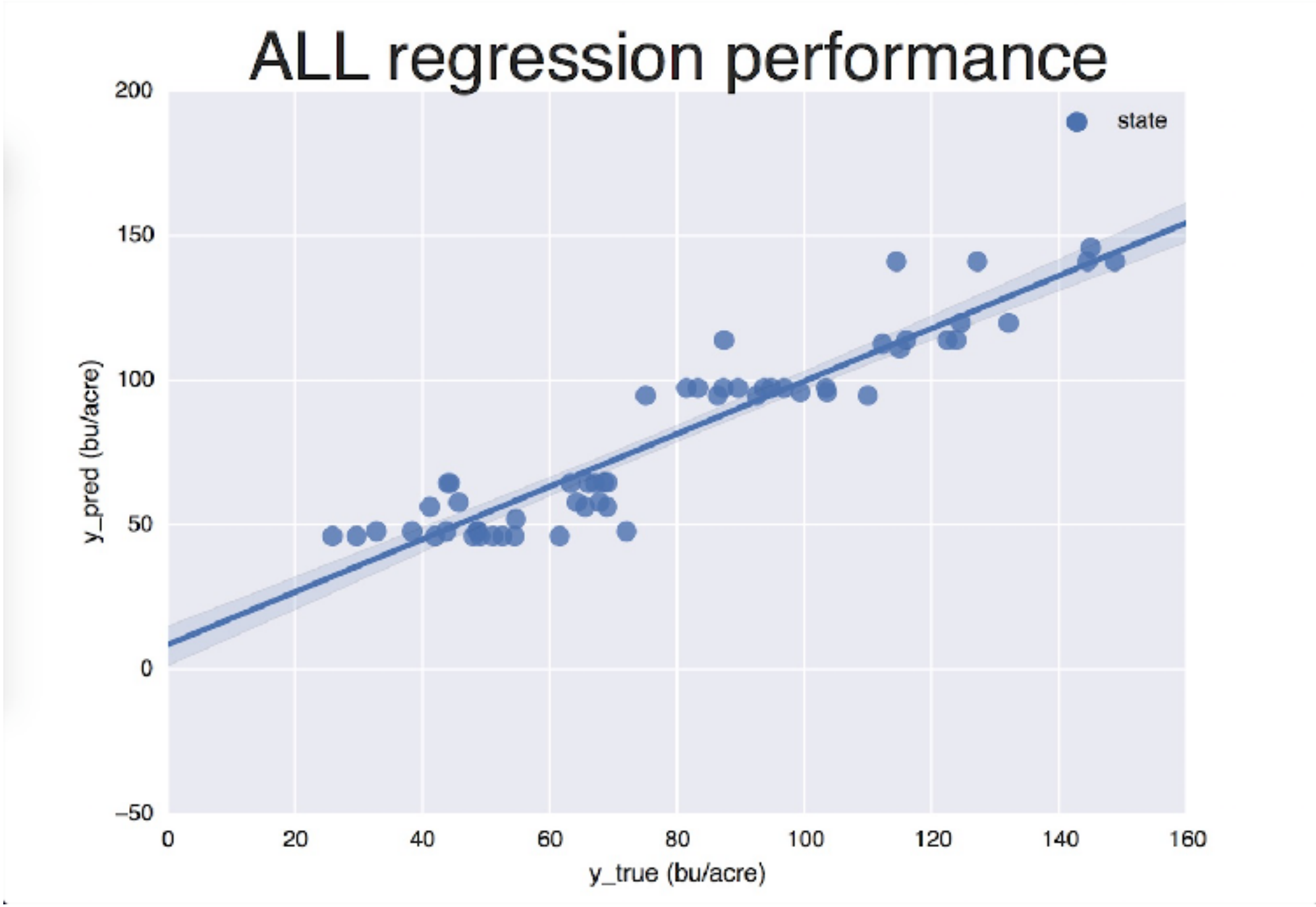
Email: wadere@gmail.com



APPENDIX

Results


ALL regression performance
state
y_pred (bu/acre)
y_true (bu/acre)
200
150
100
50
0
−50
0
20
40
60
80
100
120
140
160

DATA

Public Data Sources

- **National Agricultural Statistics Service →**
  - Yearly reported crop data
  - https://www.usda.gov/wps/portal/usda/usdahome
- **NASA** LANDSAT8 Satellite data →
  - Satellite image feed for field health analysis
  - https://www.nasa.gov/mission_pages/landsat/main/index.html
- **DARK SKY →**
  - Historical and forecast weather (localized)
  - https://darksky.net

Private Data Sources

- **Miller-Coors**
  - Barley purchasing and horticulture group
  - Knowledge on key factors impacting barley yield
  - https://www.millercoors.com