Nathan Vilbert Kosasih - 69903 - IS529 - A

Creation Date: Sunday, 20 October 2024, 13:41:29
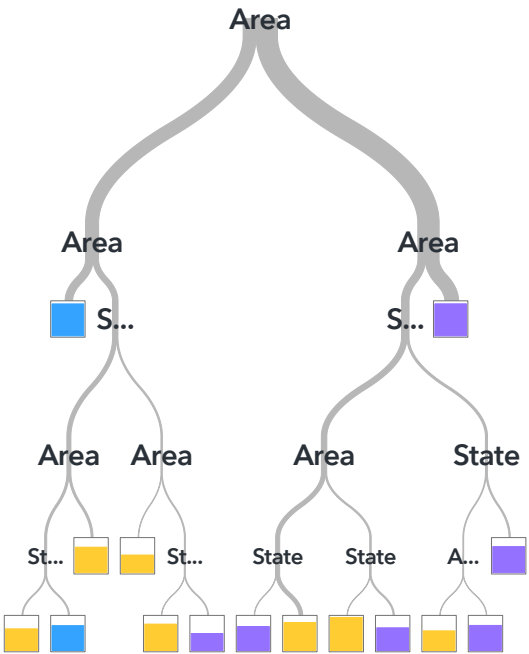Author: nathan.vilbert@student.umn.ac.id

Decision Tree
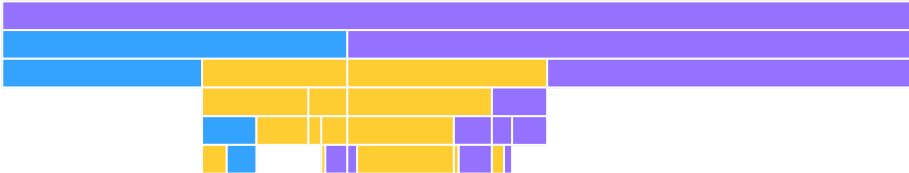
Decision Tree of Production Level

Event: **Tinggi**   Fit: **Misclassification Rate 0.1681**   Observations: **20K of 20K**
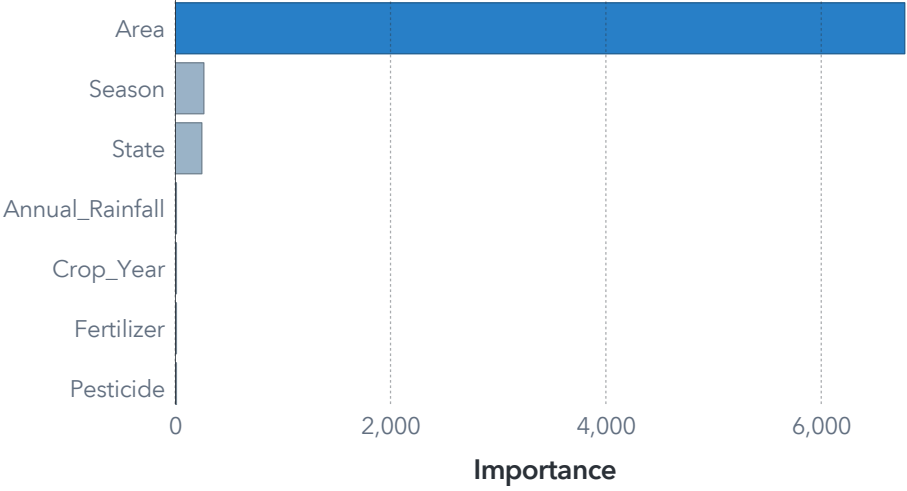
Tree

Production Level
🟦 Rendah 🟨 Sedang 🟪 Tinggi

Variable Importance

Confusion Matrix
Observed

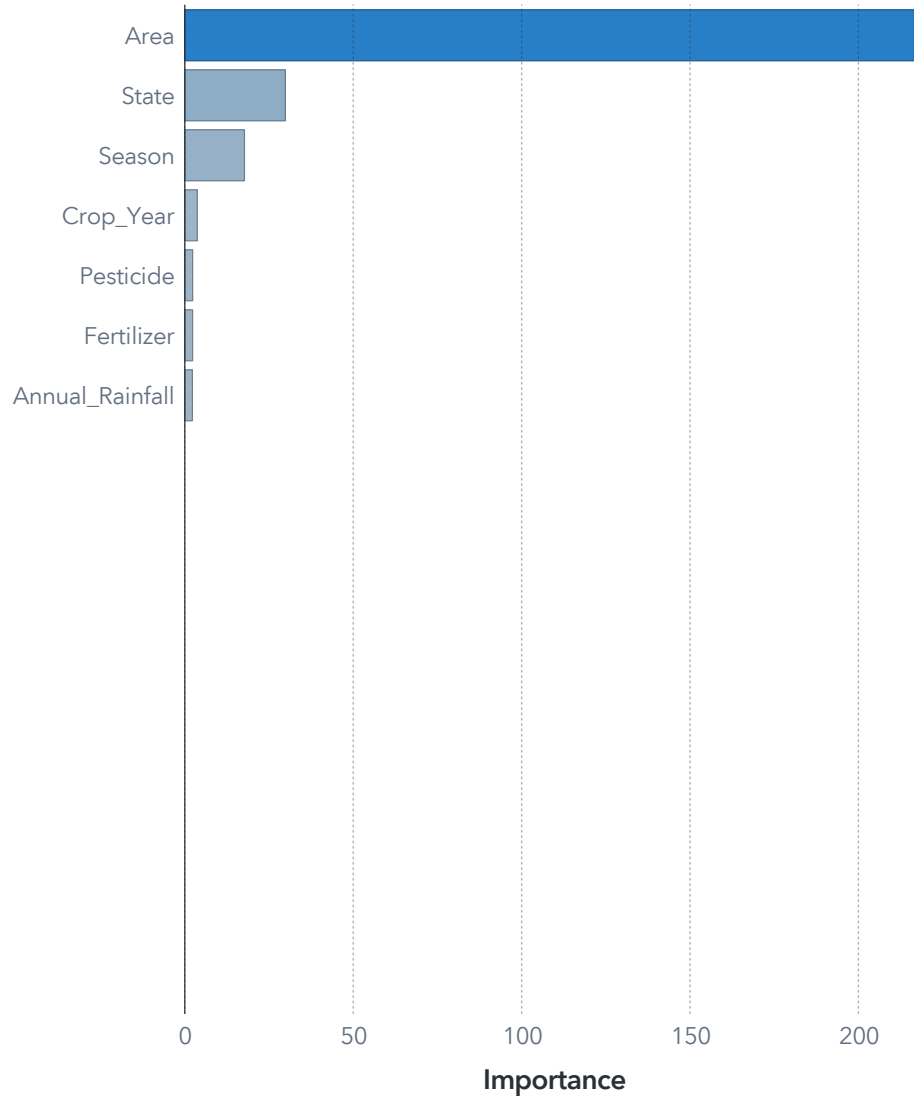|	Rendah	Sedang	Tinggi
Rendah	4.2K	577	108
Sedang	631	3.2K	1.1K
Tinggi	104	758	9K

Predicted

Gradient Boosting

Gradient Boosting of Production Level

Event: **Tinggi**   Fit: **Misclassification Rate 0.1319**   Observations: **20K of 20K**

Variable Importance

Iteration Plot

Misclassification Rate

Confusion Matrix

Observed

	Rendah	Sedang	Tinggi
Rendah	4.4K	470	57
Sedang	525	3.7K	681
Tinggi	69	794	9K

Predicted

Forest

Forest of Production Level
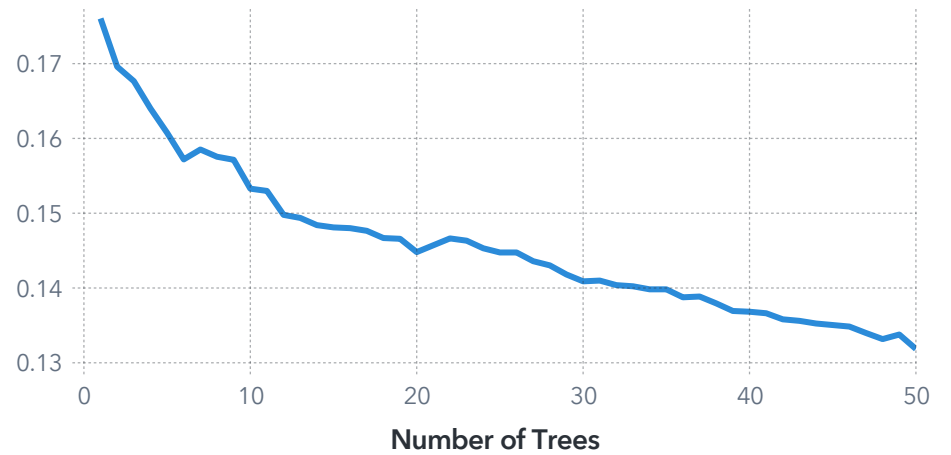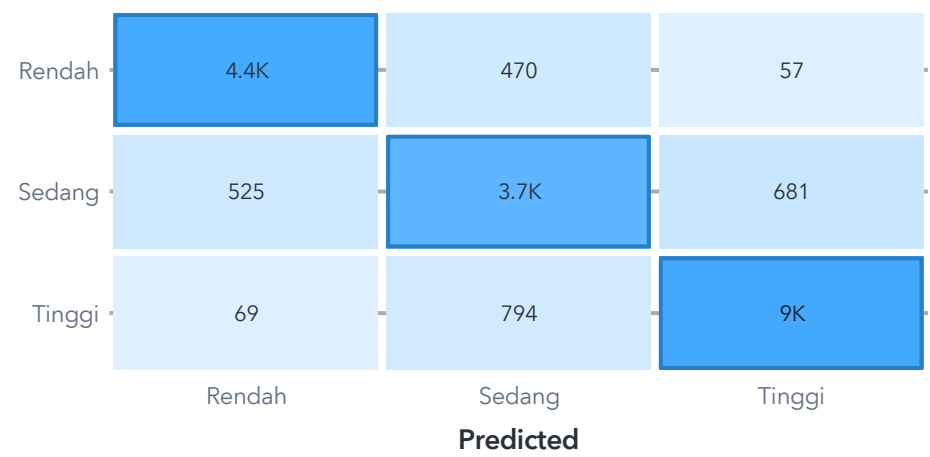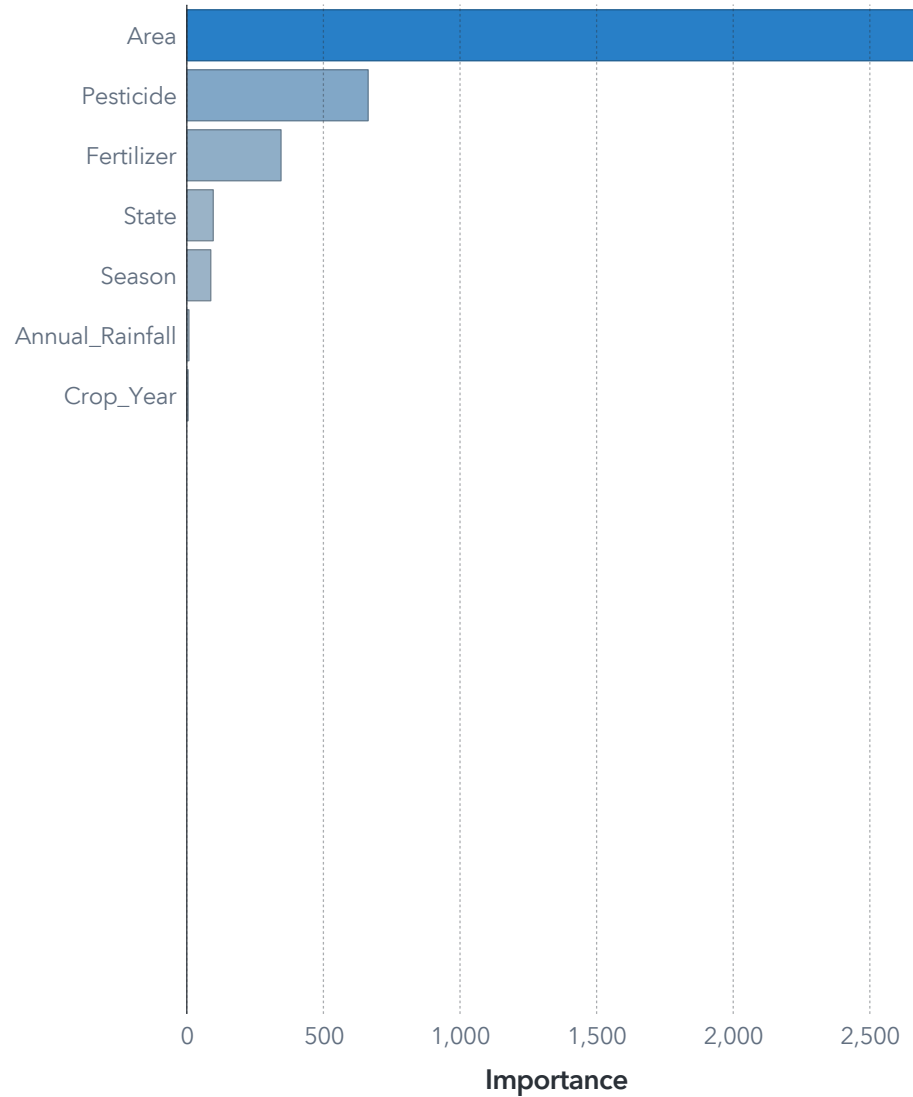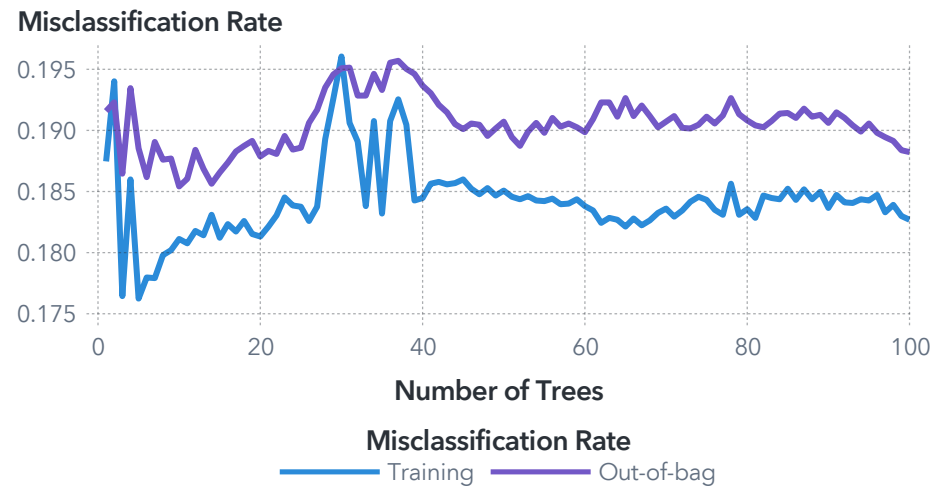
Event: **Tinggi**   Fit: **Misclassification Rate 0.1825**   Observations: **20K of 20K**

Variable Importance

Error Plot

Misclassification Rate

Misclassification Rate
—— Training   —— Out-of-bag

Confusion Matrix

Observed

	Rendah	Sedang	Tinggi
Rendah	4.3K	517	102
Sedang	794	3.4K	777
Tinggi	152	1.3K	8.4K

Predicted
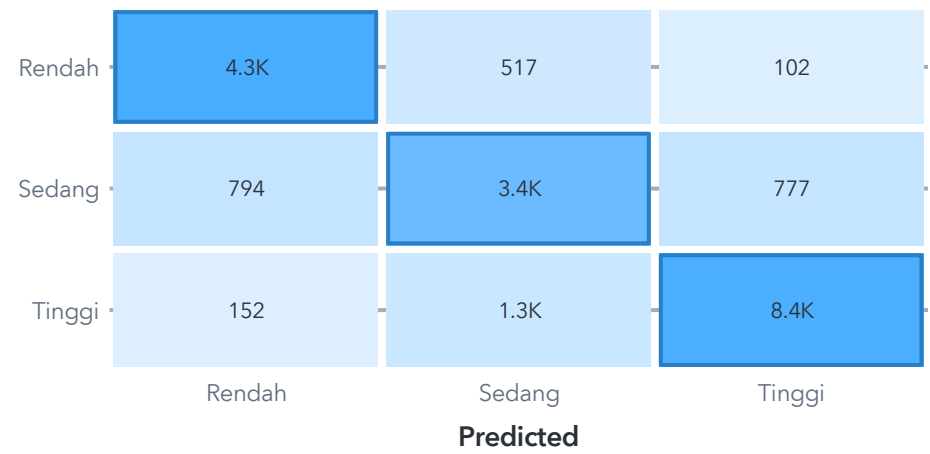
Model Comparison

Model Comparison of Production Level

Event: **Tinggi**

Fit Statistic
Misclassification Rate

0.15
0.10
0.05
0.00

Selected

Decision tree - Production Level 1

Gradient boosting - Production Level 1

Forest - Production Level 1

Model
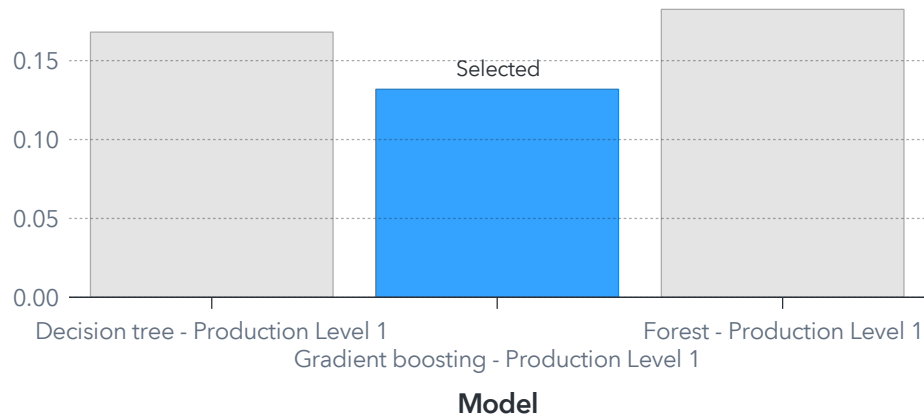
Relative Importance Plot
Variable

Pesticide
Fertilizer
Crop_Year
Area
Annual_Rainfall
Season
State

Model

0.0   0.2   0.4   0.6   0.8   1.0

Relative Importance
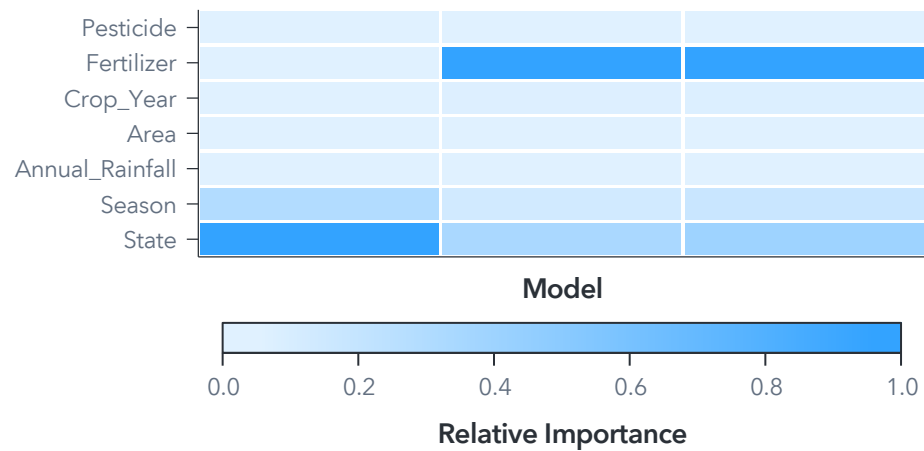
Confusion Matrix
Observed

	Decision tree			Gradient boosting			Forest		
Rendah	4.2K	577	108	4.4K	470	57	4.3K	517	102
Sedang	631	3.2K	1.1K	525	3.7K	681	794	3.4K	777
Tinggi	104	758	9K	69	794	9K	152	1.3K	8.4K

Predicted Rendah   Tinggi Rendah   Tinggi Rendah   Tinggi
            Sedang   Sedang   Sedang

Model Decision tree - Produc... Gradient boosting - Pr... Forest - Production Le...