



# **RICE LEAF DISEASE IMAGE CLASSIFICATION**

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*9/20/2022*

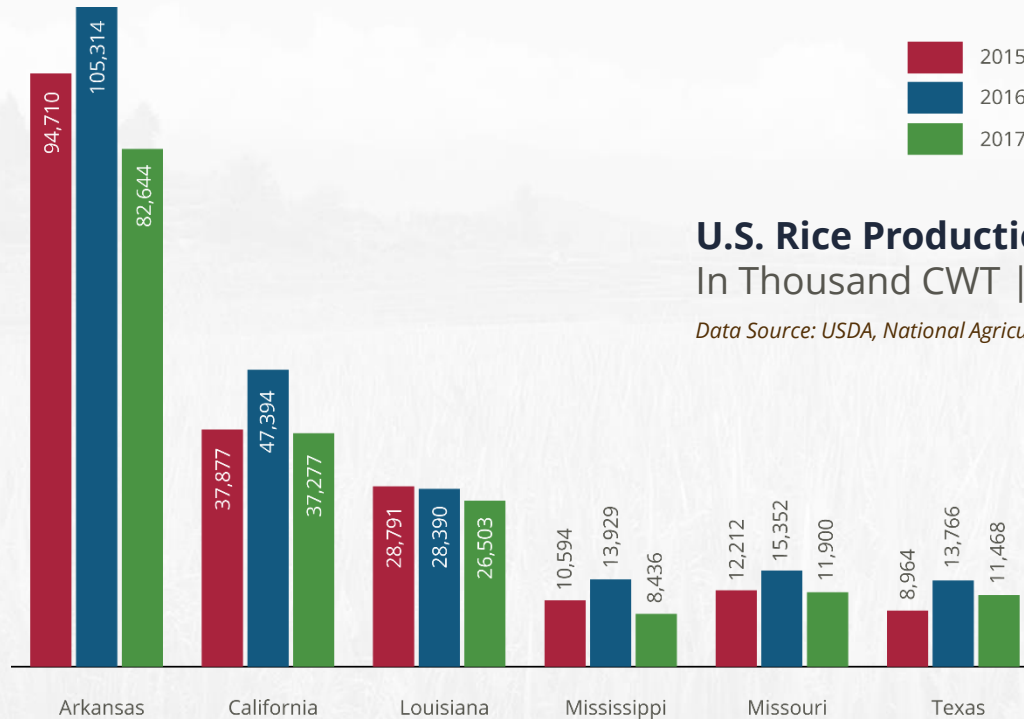




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# Introduction



## U.S. Rice Production by State In Thousand CWT | 2015-2017

*Data Source: USDA, National Agricultural Statistics Service*

**Rice production** is the third largest among cereals in the United State. Rice farms are the most capital-intensive, and have the highest national land rental rate average.



# Problem Statement

Plant pest and bacterial diseases are often severe during periods of *warm temperatures* and *high moisture*. Thus, it becomes a difficult task for cultivators to individually identify these cases, especially for large fields.



1. The visual observation requires expertise, and it may vary subject to an individual which may lead to an error
2. Laboratory test is time consuming and may not be able to provide the results in time.

This creates a need for Image processing techniques which will help in accurate and timely detection of the diseases and overcome the limitations of the human vision



*Is An Innovative Way To Diagnose And Classify Rice Diseases*

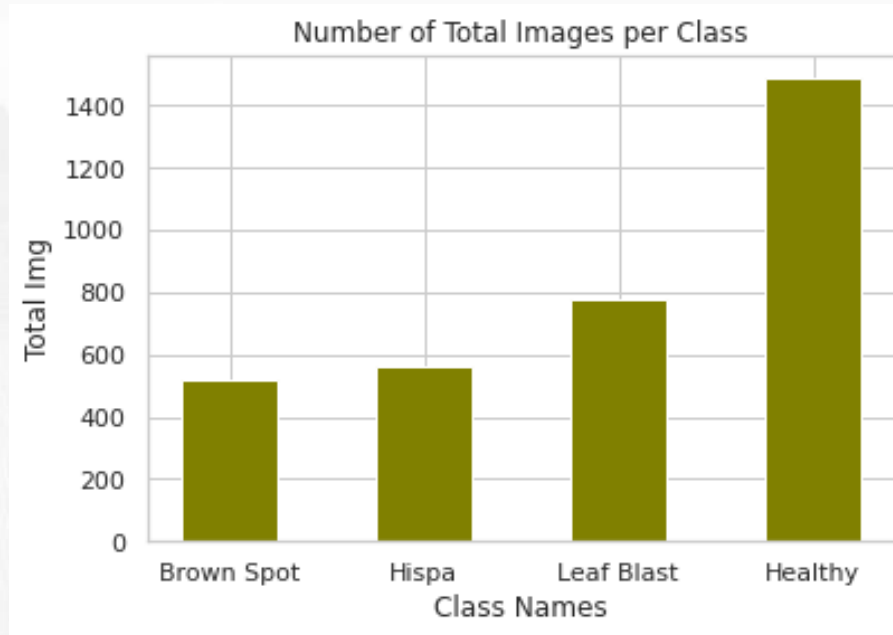





Use **LEAF GREEN** app to scan your rice leaves for diseases.

Our proven mobile solution able to predict three common rice leaf diseases (*Brown Spot*, *Leaf Blast*, *Hispa*) as early as possible before it spreads to the rest of the rice plants.

# Data Understanding




*Data source is from the open-source public data in Kaggle*

 NIZOR OGBEJUODE · UPDATED 10 MONTHS AGO

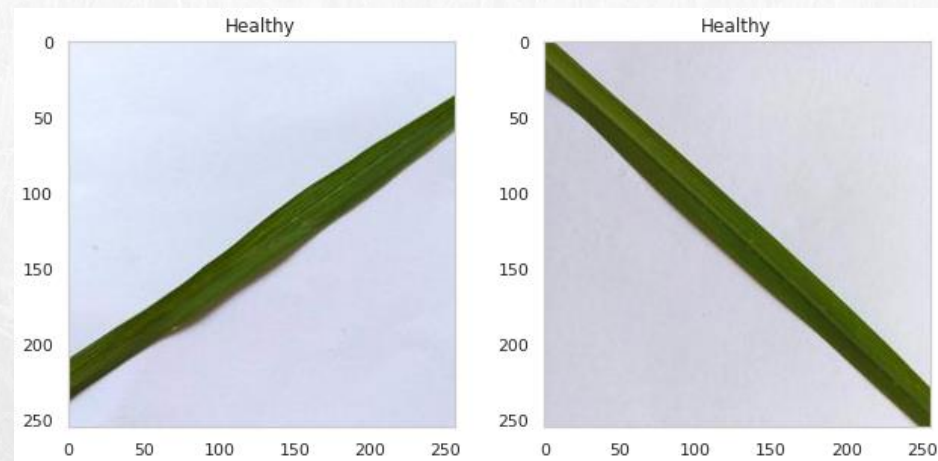
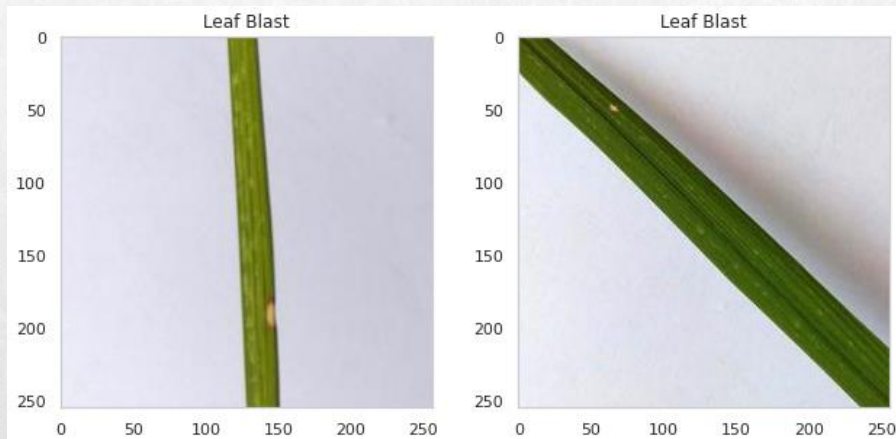
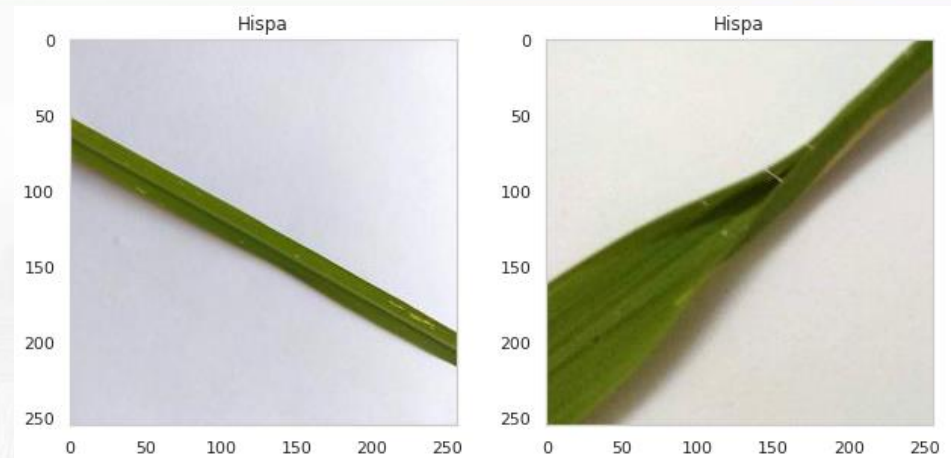
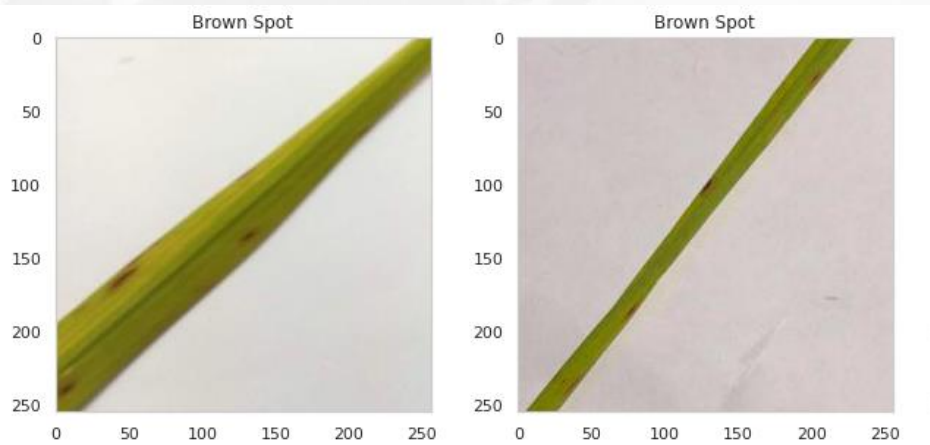
▲ 16 New Notebook Download (19 MB)

## rice\_leaf\_images

Rice Leaf Images in 4 different classes [Healthy, Brown Spot, Hispa, Leaf Blast]



# Data Samples

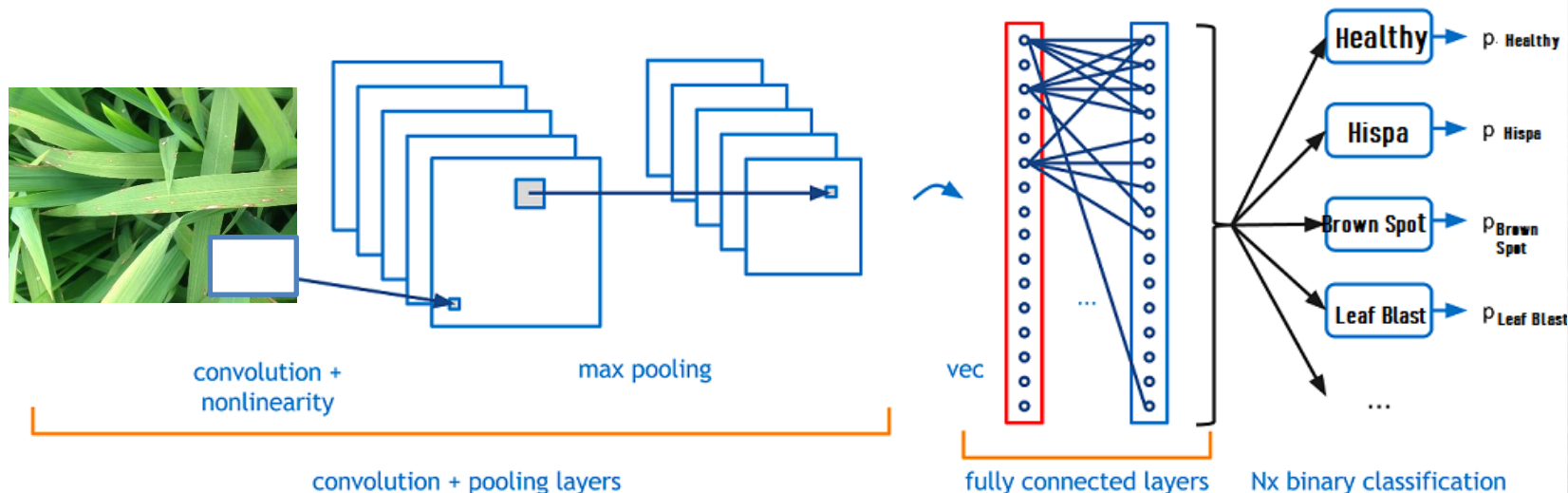




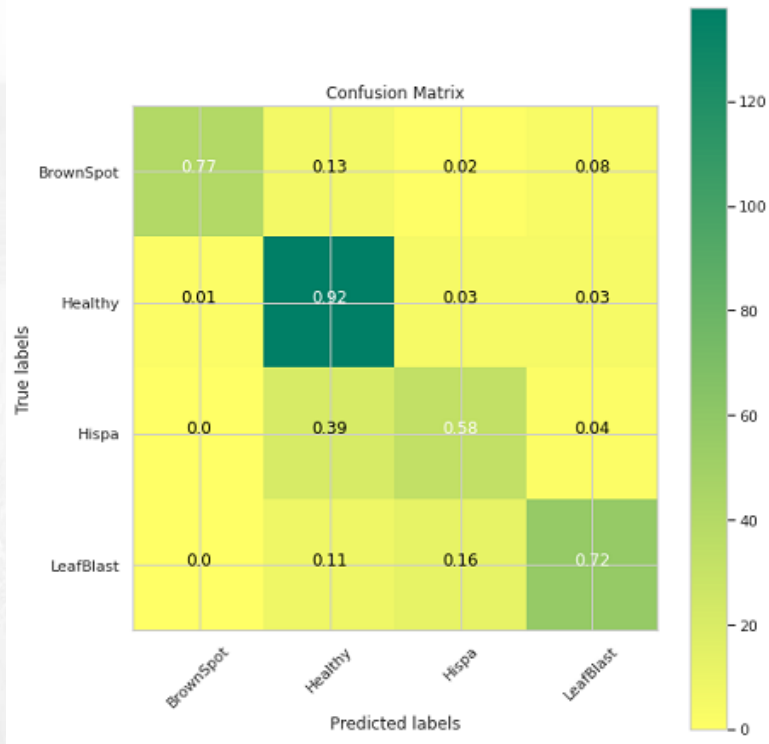


How does **LEAF GREEN** work?

We reviewed thousands of images of healthy and diseased rice leaves and trained a model to classify these images.



## LEAF GREEN can tell



*Average F1 test score  $\approx 77\%$*

### Classification Report

	precision	recall	f1-score	support
BrownSpot	0.95	0.77	0.85	53
Healthy	0.78	0.92	0.85	150
Hispa	0.63	0.58	0.61	57
LeafBlast	0.84	0.72	0.78	79
accuracy	0.79			339
macro avg	0.80	0.75	0.77	339
weighted avg	0.80	0.79	0.79	339



# Recommendation

Our recommendation use **LEAF GREEN**



*HEALTHY RICE PLANT  
FRESH ENVIRONMENT  
HAPPY FARMERS !!!*

Let's work in collaboration for

More Users

More Rice Image Data

More Accurate Rice Disease Predictions

**EARLY DISEASE PREVENTION!**







# THANK YOU

ANY QUESTIONS?

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