



# **RICE LEAF DISEASE IMAGE CLASSIFICATION**

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**Rice production** is the 3<sup>rd</sup> largest among cereals in the U.S.  
Arkansas where our *stakeholders* from ranks 1<sup>st</sup> in rice production in the U.S.,  
accounting for over 40% of rice production



# Problem Statement



It becomes a difficult task for cultivators to individually identify *rice pest* and *bacterial diseases*

1. *The visual observation requires expertise*
2. *Laboratory test is time consuming*

# Solution



**LEAF**  **GREEN**

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



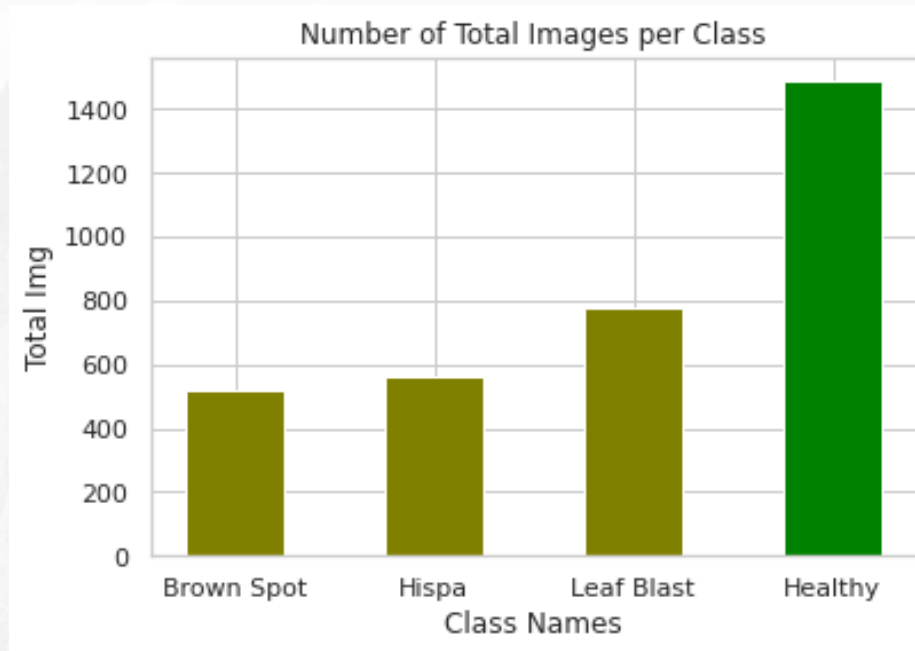
## How does it work?




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


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

# Data Understanding




*The total Data Image is **3355** sourced from the open-source public data in Kaggle*

 NIZOR OGBEJUODE · UPDATED 10 MONTHS AGO

 16


[New Notebook](#)

[Download \(19 MB\)](#)

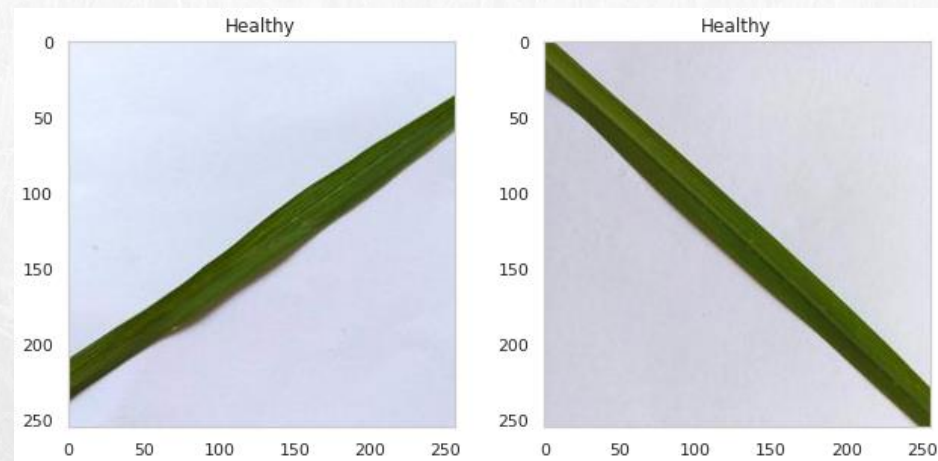
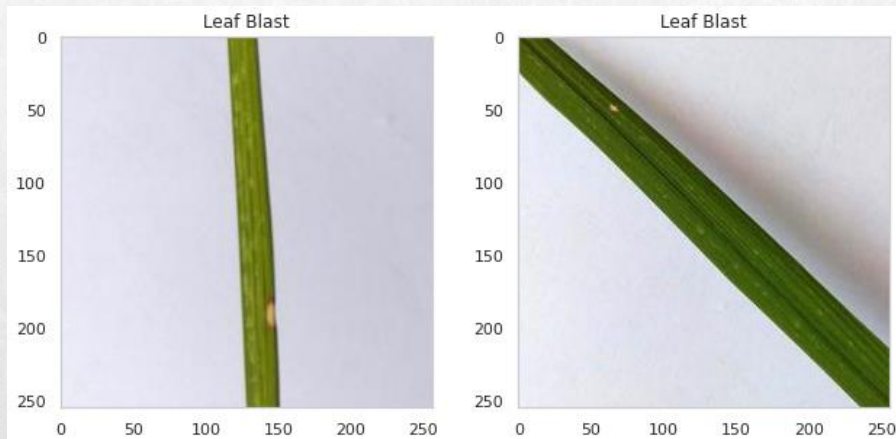
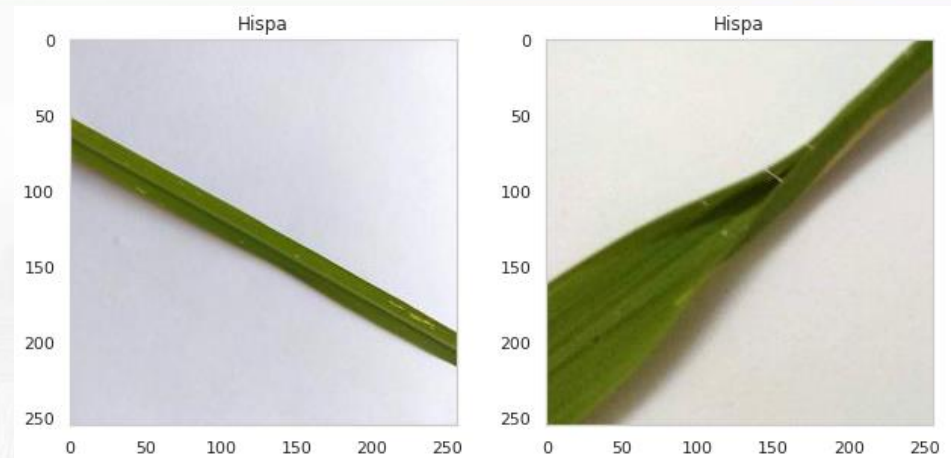
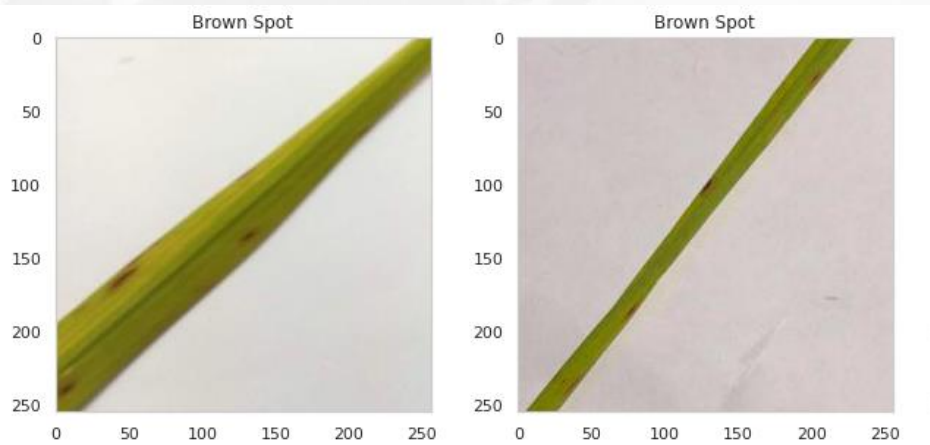


## rice\_leaf\_images

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



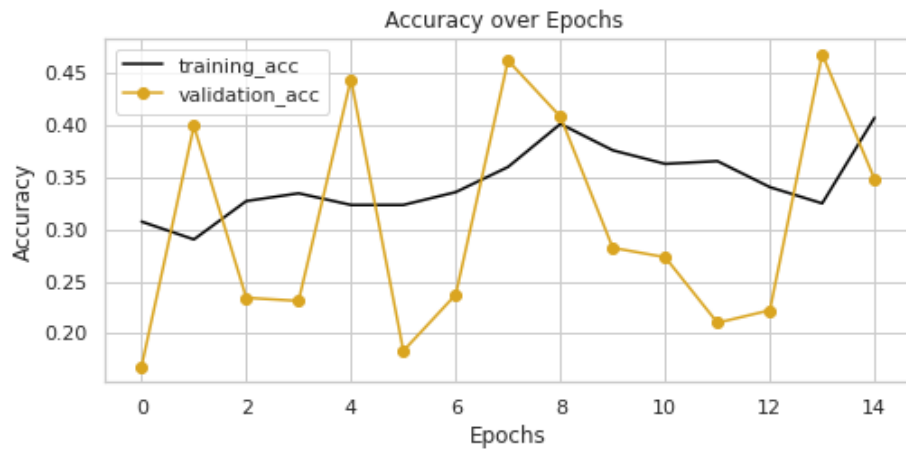
# Data Samples



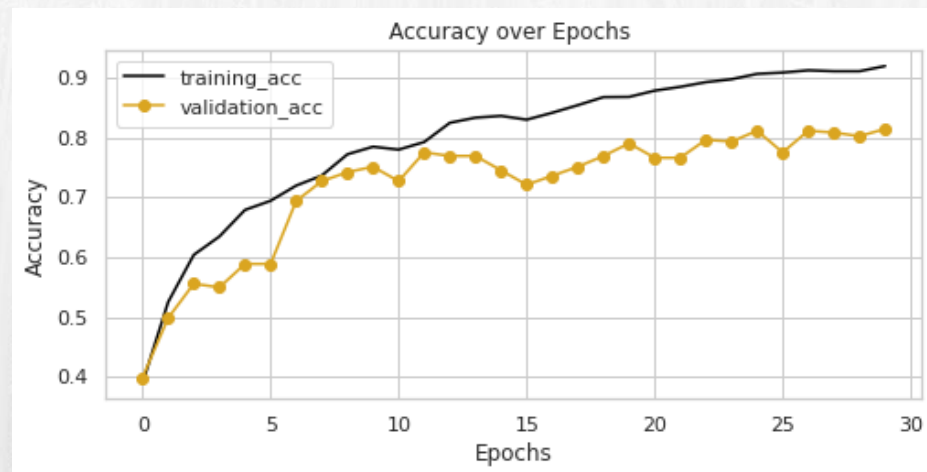



# Results

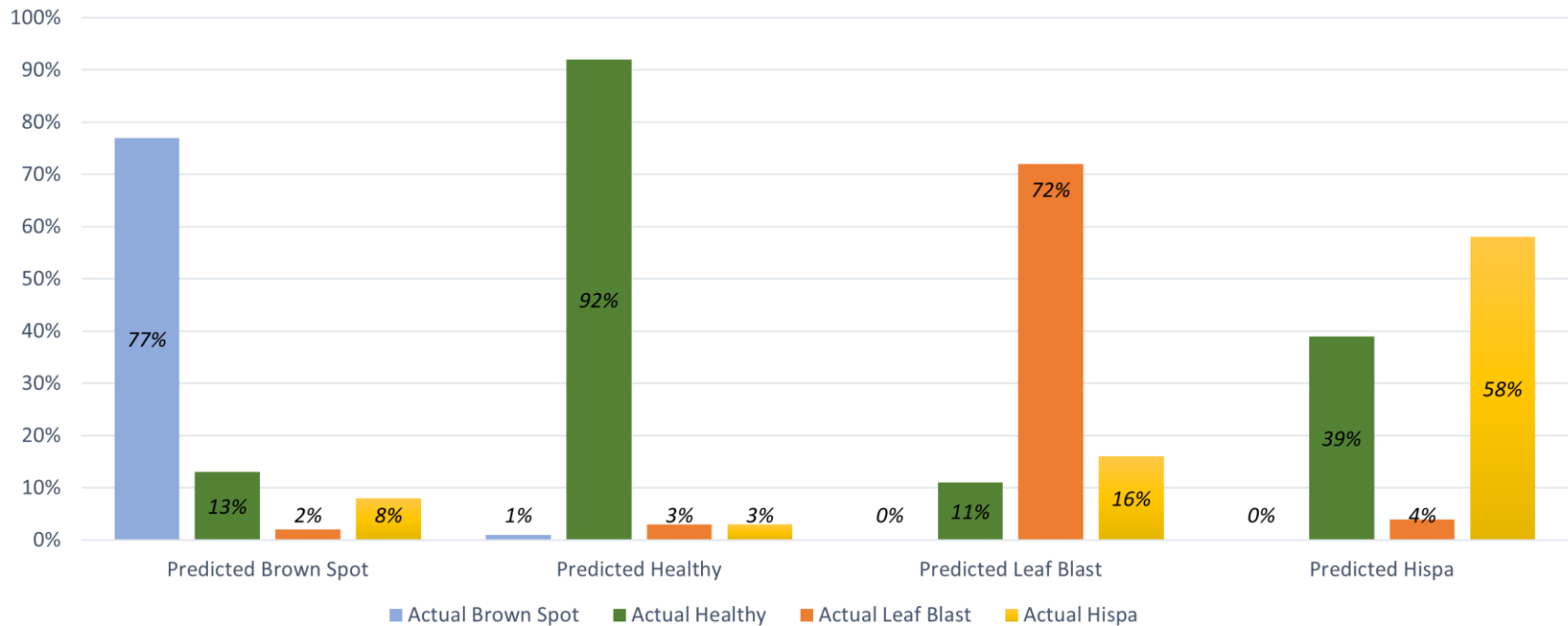
## *Baseline Model Accuracy*



## *Final Model Accuracy*



**LEAF**  **GREEN** is able to classify rice diseases with classification **Accuracy of 79%**



*Performance of a Final Classification Model*





The best control for pests and disease problems is ***prevention***.

Let **LEAF GREEN** to assist you to identify *Brown Spot*, and *Leaf Blast* in an early stages of diseases along with *Healthy leaves*

# Recommendations

*To limit pest and disease damage:*

STEP ① Practice good cleaning of equipment and field between seasons

STEP ② Use clean seeds and resistant varieties

STEP ③ Plant at the same time as your neighbors

STEP ④ Do not over apply fertilizer

STEP ⑤ Encourage natural pest enemies

STEP ⑥ Do not apply pesticide within 40 days of planting

STEP ⑦ Properly store grain





*Model can be further improved with:*

- Large dataset of rice diseased images
- Various images along with other common diseases
- Tuning the various hyperparameters and functions
- Experimenting with a different algorithm
- Adding some context to the data





# THANK YOU

ANY QUESTIONS?

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