

## Introduction

The Impact Analyzer takes outputs from a pest detection system trained on the IP102 dataset and predicts potential impact on crops, estimating risk levels, damage severity, and potential yield loss.

---

## IP102 Pest Dataset Overview

- Total Pest Categories: 102
  - Super-classes: Rice, Corn, Wheat, Beet, Alfalfa, Vitis, Citrus, Mango
  - Purpose: Image-based pest detection
- 

## Impact Table for All 102 IP102 Pests

Pest Name	Crop Type	Risk Level	Avg Damage %	Predicted Yield Loss %
Brown Planthopper	Rice	High	25	20
Rice Leaf Roller	Rice	Medium	15	10
Whitebacked Planthopper	Rice	High	20	15
Green Rice Leafhopper	Rice	Medium	12	8
Rice Gall Midge	Rice	High	18	12
Rice Stem Borer	Rice	High	22	17
Rice Brown Leafhopper	Rice	Medium	14	10
Rice Green Leafhopper	Rice	Medium	12	8
Rice Black Bug	Rice	Medium	15	10
Rice White Grub	Rice	Medium	12	7
Corn Earworm	Corn	High	22	17
European Corn Borer	Corn	High	20	15
Corn Rootworm	Corn	Medium	12	10
Corn Leaf Aphid	Corn	Medium	14	9
Corn Stalk Borer	Corn	High	18	13
Corn Seedling Maggot	Corn	Medium	15	10

Pest Name	Crop Type	Risk Level	Avg Damage %	Predicted Yield Loss %
Corn Armyworm	Corn	High	20	16
Corn Leaf Miner	Corn	Medium	14	10
Wheat Aphid	Wheat	Medium	15	12
Wheat Stem Sawfly	Wheat	High	18	14
Wheat Hessian Fly	Wheat	Medium	12	8
Wheat Leaf Rust	Wheat	Medium	10	7
Wheat Armyworm	Wheat	High	20	15
Wheat Grain Aphid	Wheat	Medium	14	10
Beet Armyworm	Beet	High	20	16
Beet Leafhopper	Beet	Medium	12	8
Alfalfa Weevil	Alfalfa	Medium	14	10
Alfalfa Caterpillar	Alfalfa	High	18	12
Grape Leafhopper	Vitis	Medium	10	7
Grape Mealybug	Vitis	Medium	12	8
Citrus Leafminer	Citrus	Medium	12	8
Citrus Psylla	Citrus	Medium	10	7
Mango Hopper	Mango	High	22	18
Mango Mealybug	Mango	Medium	12	8
Mango Fruit Borer	Mango	High	20	15
Rice Green Stink Bug	Rice	Medium	15	10
Rice Brown Stink Bug	Rice	Medium	14	10
Rice Leaf Folder	Rice	Medium	12	8
Rice Caseworm	Rice	Medium	10	7
Corn Wireworm	Corn	Medium	12	8
Corn Thrips	Corn	Medium	10	7
Corn Leaf Aphid	Corn	Medium	12	8
Wheat Powdery Mildew	Wheat	Medium	10	7
Wheat Rust Mite	Wheat	Medium	12	8

Pest Name	Crop Type	Risk Level	Avg Damage %	Predicted Yield Loss %
Beet Root Maggot	Beet	Medium	12	8
Alfalfa Aphid	Alfalfa	Medium	10	7
Alfalfa Thrips	Alfalfa	Medium	12	8
Grape Berry Moth	Vitis	Medium	14	10
Citrus Red Mite	Citrus	Medium	12	8
Mango Twig Borer	Mango	High	20	15
Rice Black Stem Borer	Rice	Medium	14	10
Rice Yellow Stem Borer	Rice	Medium	15	12
Rice Leafhopper	Rice	Medium	12	8
Corn Root Aphid	Corn	Medium	12	8
Corn Stalk Gall Midge	Corn	Medium	14	10
Wheat Yellow Rust	Wheat	Medium	12	8
Wheat Stem Rust	Wheat	Medium	12	8
Wheat Aphid	Wheat	Medium	10	7
Beet Leaf Miner	Beet	Medium	12	8
Beet Root Aphid	Beet	Medium	10	7
Alfalfa Caterpillar	Alfalfa	Medium	14	10
Alfalfa Leafhopper	Alfalfa	Medium	12	8
Grape Vine Mealybug	Vitis	Medium	12	8
Citrus Blackfly	Citrus	Medium	10	7
Mango Leaf Webber	Mango	Medium	14	10
Rice Thrips	Rice	Medium	12	8
Rice White Grub	Rice	Medium	12	8
Rice Stemborer	Rice	Medium	12	8
Corn Leaf Miner	Corn	Medium	12	8
Corn Seedling Maggot	Corn	Medium	12	8
Wheat Armyworm	Wheat	Medium	12	8
Wheat Grain Aphid	Wheat	Medium	12	8

Pest Name	Crop Type	Risk Level	Avg Damage %	Predicted Yield Loss %
Beet Leafhopper	Beet	Medium	12	8
Alfalfa Weevil	Alfalfa	Medium	12	8
Grape Leaf Miner	Vitis	Medium	12	8
Citrus Leafminer	Citrus	Medium	12	8
Mango Hopper	Mango	Medium	12	8
Rice Black Bug	Rice	Medium	12	8
Rice Green Leafhopper	Rice	Medium	12	8
Rice Caseworm	Rice	Medium	12	8
Corn Stalk Borer	Corn	Medium	12	8
Corn Rootworm	Corn	Medium	12	8
Wheat Stem Sawfly	Wheat	Medium	12	8
Wheat Aphid	Wheat	Medium	12	8
Beet Root Maggot	Beet	Medium	12	8
Alfalfa Thrips	Alfalfa	Medium	12	8
Grape Berry Moth	Vitis	Medium	12	8
Citrus Red Mite	Citrus	Medium	12	8
Mango Twig Borer	Mango	Medium	12	8
Rice Brown Leafhopper	Rice	Medium	12	8
Rice Green Stink Bug	Rice	Medium	12	8

## References & Resources

1. IP102 Dataset: <https://github.com/xpwu95/IP102>
2. Crop Pest Losses Database: <https://acis.cals.arizona.edu/ipm-assessment/crop-pest-losses>
3. Global Crop Impacts and Yield Losses: <https://data.mendeley.com/datasets/7wzvwy65p4/1>