

Crop Disease Identification

Objectives

- Automated detection of crop diseases from images and provide real-time guidance to farmers.

Technologies

- YOLOv8 Object Detection
- LangChain & OpenAI's GPT models
- ReactJS for frontend development



Workflow

- Train YOLOv8 model on a crop disease [dataset](#)
- Pass the uploaded image to the trained model to extract the disease label
- Pass disease label to LLM via LangChain to get contextual responses and guidance ready for user queries

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Workflow Continued ...

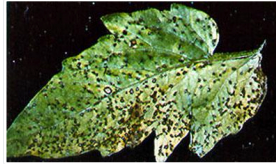
- **Develop frontend using ReactJS**
- **Create Flask APIs to bridge frontend and backend functionalities**
- **[Optional] Deploy the chatbot on a hosting service.**

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Final Look



Preview



Choose file 32-Septoria-leaf-spot.jpg.rf.0d79897f4dfcd2ea16430a5faeb75d2c.jpg

Process

Processed Image



Detected Diseases: Tomato Septoria leaf spot

Crop Disease Identification

Detected Diseases: Tomato Septoria leaf spot

How can we assist you?

What steps should I take to eliminate this disease?

To eliminate Tomato Septoria leaf spot, you can follow these steps: 1. Remove infected leaves: Start by removing all the infected leaves from the tomato plants. This will help prevent the spread of the disease to healthy leaves. 2. Proper sanitation: Clean up any fallen leaves or plant debris from the surrounding area. This will reduce the chances of the fungus overwintering and re-infecting the plants in the next growing season. 3. Water management: Avoid overhead watering, as this can promote the spread of the disease. Instead, water the plants at the base to keep the foliage dry. Watering in the morning allows the leaves to dry quickly and reduces the chances of infection. 4. Proper spacing: Ensure that the tomato plants are properly spaced to allow for good air circulation. This helps to reduce humidity around the plants, which can create favorable conditions for the disease to thrive. 5. Fungicide application: If the disease persists or is severe, you may consider using a fungicide labeled for Tomato Septoria leaf spot. Follow the instructions on the label carefully and apply the fungicide as directed. 6. Crop rotation: Avoid planting tomatoes or other susceptible plants in the same location for at least two years. This helps to break the disease cycle and reduces the chances of re-infection. Remember, prevention is key in managing plant diseases. Regularly inspect your plants for any signs of disease and take prompt action if you notice any symptoms.

Type a message...

Send

Benefits to Farmers

- Quick disease identification
- Reliable remedial actions suggested
- Potential reduction in crop losses
- Improved yield and productivity

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Future Steps

- **Expand training data for disease identification**
- **Integrate local agricultural practices as source material for the LLM using LangChain**
- **Deploy in plot regions for real-world validation**

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**Thank you
& Welcome**