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Variety of Crop Leaf Diseases: A Review

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Abstract: ***Diseases in plants cause major production and economic losses as well as reduction in both Quality and Quantity of agricultural products. In agricultural research analysing & detecting leaf disease is essential topic as it may help monitoring large area of crops, and thus automatically detect symptoms of disease before spreading plant leaves. Early detection of crop health degradation and its disease can help to control & treat diseases on leaf through proper management strategies. The paper reviews the Different Types of leaf diseases and their characteristics.***
Keywords: Agriculture, Bacterial, Fungus, Viral Diseases.

I. INTRODUCTION

Crop Leaf Diseases could lead to hamper Agriculture production drastically. The term disease is used for decay of live plants. Agricultural products are not only to feed the human being and animals, but also an essential entity for environmental control. Yields from the crops, may be that of grains, fruits or vegetables are bread and butter for not only the farmers, but also for whole human society, animals, birds etc. Besides nature catastrophes like floods, draught and earthquakes, diseases are another big cause of reduction in crop yields. Various diseases spoil both, the quality and quantity of yields. Crop management requires monitoring in terms of diseases, which causes damage to the plant growth and their early detection for immediate control and cure. The review of various types of leaf diseases are discussed in the paper.

II. CATEGORIES OF PLANT DISEASES

Many plant diseases exist across the world, but those that we may encounter in our Garden or nearby, fall into 3 general categories: Bacterial, Fungal and Viral. They are the infectious form of diseases and are described below:

A. Bacterial Diseases

Bacterial Diseases spread very fast and are difficult to control. They are too small to be seen by naked eye, but the symptoms of this infection, includes dark streaks on plant foliage[1]. Bacteria are single-celled microorganisms in which the nuclear substance is not enclosed in a membrane. Bacterial Disease signs are difficult to observe, but can include:

1) Bacterial Ooze
2) Water- Soaked lesions
3) Bacterial streaming in water from a cut stem

Some possible Symptoms[2] of Bacterial Disease can be summarized as:

a) Dark Streaks on Plant Foliage
b) Tiny pale green spots which soon come into view as water-soaked & appear as dry dead spots.
c) Leaf spot with yellow halo
d) Fruit spot
e) Canker
f) Crown gall
g) Shepherd's crook stem ends on woody plants

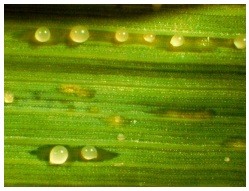
Examples are shown below in Fig 1:

Dark Streaks



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Bacterial Ooze



Leaf Spot with Yellow Halo

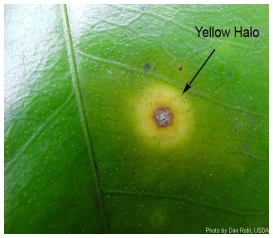


Fig. 1: Examples of Bacterial Infection

B. Fungal Diseases

Fungal diseases are caused by fungus. In our gardens, we may encounter parasitic fungi, often presents as discoloration, dots or fuzzy mold- like growth on plants. Some signs of fungal diseases can include:

1) Leaf Rust (Common leaf rust in corn)
2) Stem Rust (Wheat Stem Rust)
3) Sclerotinia (White Mold)
4) Powdery Mildew

Some possible symptoms[2] of Fungal Diseases can include:

a) Birds eye Spot on berries (anthracnose)
b) Damping off of seedling (phytophthora)
c) Leaf spot (Septoria brown spot)
d) Chlorosis (Yellowing of leaves)

Examples are shown below in Fig 2:

Leaf Rust in Corn



Birds eye Spot on Berries



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Septoria Brown Spot



Fig. 2: Examples of Fungal Infection

C. Viral Infections

Diseases caused by viruses are the most difficult to diagnose. Viruses produce no such signs that can be readily observed and often easily confused with nutrient deficiencies and herbicide injury. They are too small to see with the naked eye. Insect pests, such as aphids and leafhoppers, commonly spread viruses.

Some possible symptoms of Viral Diseases can include:

1) Mosaic leaf pattern
2) Crinkled leaves
3) Yellowed leaves
4) Plant Stunting

Examples are shown below in Fig 3:

Mosaic Platform



Plant stunting



Fig. 3: Examples of Viral Infection

Others are Non-Infectious type diseases. Non-infectious diseases or disorders are caused by mineral toxicities, soil acidity, nutrient deficiencies, or environmental factors.

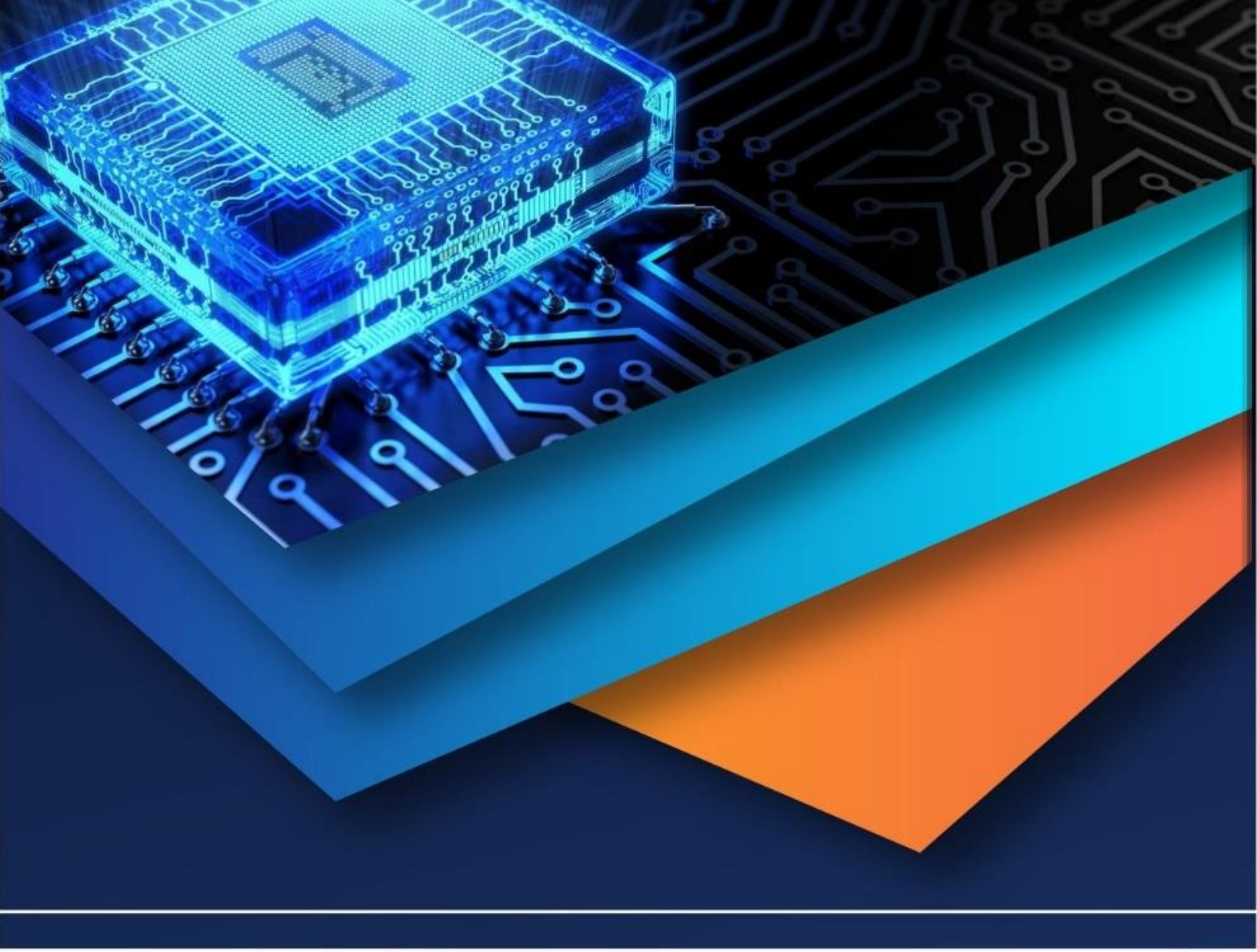
III.CONCLUSIONS

We can see that there is a lot of overlap between fungal, bacterial and viral disease symptoms. These lists are not complete or exhaustive, only examples. We can conclude that prevention is the easiest, most effective solution of all and crops should be taken good care if in any way symptoms of any leaf disease are seen.

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