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A survey on identification and classification of wheat plant disease, in Madhepura, Bihar

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Abstract : Plants are infested with several diseases and it is of great importance to identify the disease and its causative agents. Identifying disease from the sample of plant is one of the interesting research areas in agriculture research field. This paper deals with the process of identification and classification of wheat plant disease based on the survey. This paper not only deals with the survey of wheat fields but also concisely discusses important concepts of plants disease detection and classification.

Key words: *Alternaria triticina*, wheat plants, identification, leaf blight pathogen.

INTRODUCTION

Agriculture is one of the main sources of income in India. Farmers can grow variety of crops but disease hamper the growth of crops. Agriculture is the major sector of the Indian economy. About 70-75% of countries population is agriculture dependent. Wheat is the staple good for about one third of the global population. Wheat is commonly known as “Genhu”. Its cultivation covers an area of about 12 million vectors (Britannica online 2015)¹. One of the major factors responsible for the crop destruction is plant disease. The main part of plant to examine the disease is leaf.²

The present survey has been carried out in different wheat field around Madhepura. In Madhepura agriculture is the main source of income for the natives. Leaf blight is the most serious biotic constraint of the wheat. It occurs

as a complex spot or black spot caused usually by *Alternaria triticina*.³ Farmers were experiencing heavy economic loss due to their less crop harvest. The crops were getting damaged by several factors. One of such factors is fungal disease. The farmer fails to identify the proper disease and suffer with loss. Yield loss was directly related to area under the disease progress curve.⁴ Leaf blight occurs to some extent wherever wheat is grown. Losses in grain yield are primarily attributed to reduced floret set and grain shrivelling.⁵ In this paper authors provides the way to identify such diseases especially leaf blight. The leaf disease detection and classification of leaf disease is the key to prevent the agricultural loss. there are different methods to detect plant leaf disease. Due to possibility of various alternatives at different states of plant disease identification shown in fig. 1 & 2, researchers have attempted various methods to do so. Furthermore utility of the presented survey and findings is shown in our proposed work in the same direction.

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MATERIALS AND METHOD

Survey and collection of wheat seeds from different localities of Madhepura were done during 2017. The study has been carried out in the following manner.

Study Area

The present study was carried out in different localities of Madhepura usually in the outskirts of the city. Madhepura is situated 25°31'N latitude & 86°36' E longitude. The wheat fields are visible from far off distance as abundant of farming takes place. The total areas of



Fig. 1- Surveying the wheat fields having tender plants



Fig. 2- Collecting the infected plants



Fig. 3- Infected Leaf



Fig. 4- Wheat field



Fig. 5- Infected wheat plant



Fig. 6- Infected wheat grains

land used for cultivation is about 1,36,646 Hectare. Farming is in ample amount just because no any big industries has been setup in this district so far.

Sample Collection

Samples were collected from different fields where the infected wheat plants were found. Samples were first of all identified and then collected very carefully. The climatic conditions of the area were regularly monitored. The infected plants were collected and were carried to the laboratory for further studies. Figure given below shows the collected plants and survey.

Testing

The test set for leaf prediction as healthy/unhealthy with its disease name will be used in this stage to assess the classifier's output.

CONCLUSION

Diseases of wheat plants can cause tremendous amount of loss in the field of agriculture if proper attention is not given. Using proper technologies these disease can be identified and cured. The authors have provided several images to identify the leaf blight pathogen which makes it possible to identify and differentiate with other diseases. It is found that extraction of disease region from the leaf image is the first step. The authors utilized the survey and study presented in this paper, to propose their work in the same direction. At the proposed work, for the benefit of society directly as well as indirectly.

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REFERENCES

1. **Britannica 2015**. Educational Publishing JE Luebering: Director, Core Reference Group Anthony L. Green: Editor, Compton's by **Britannica** Rosen Publishing.
2. **Goutum Kambale & Nitin Bilgi 2017**. A Survey Paper on Crop Disease Identification and Classification Using Pattern Recognition and Digital Image Processing Techniques. *IOSR Journal of Computer Engineering*. 14-17
3. **Chaurasia S, Chand R, Joshi AK, 2000**. Relative dominance of *Alternaria triticina* Pras. et Prab. & *Bipolaris sorokiniana* (Sacc.) Shoemaker in different growth stages of wheat (*T. aestivum* L.). *Journal of Plant Diseases and Protection* **107**: 176–81.
4. **Rao, K.V.S., Snow, I.P. and Bergren, G.T. 1989**. Effect of growth stage and initial inoculum level on leaf rust development and yield loss caused by *Puccinia recondita* of sp. *Triticina*. *J. Phytopath.* **127**:200-210
5. **Singh, R.P., Mujeeb-Kazi, A. & Huerta-Espino, J. 1998**. Lr46: A gene conferring slow-rusting resistance to leaf rust in wheat. *Phytopathology*, **88**: 890-894.
6. **Chenulu, V.V., Singh A. and Joshi, L.M. 1970**. Estimation of losses due to leaf of wheat caused *Alternaria triticina*. In *Pl. Dis. Problem Proc. First Int. Symp. Pl.Path*, New Delhi 28-31

