Abstract

India’s agricultural sector faces a series of problems when it comes to increasing crop productivity. Despite the efforts of researchers to discover productive agricultural practices, crop yield has not been the most pleasing, and one global reason stated for this poor crop yield is the insect pests. Predicting in advance the occurrence of peak activities of a given pest could enable the development of a suitable pest control mechanism that would initiate better production. Researchers have attempted to comprehend the pest population dynamics by applying analytical and other techniques on pest surveillance data sets. In this paper, An intelligent system for effectual prediction of pest population dynamics of Thrips Tabaci Linde (Thrips) on cotton (Gossypium Arboreum) crop is presented. The raw data used in the proposed system was obtained from the College of Agriculture, Raichur, India. Initially, the raw (pest surveillance) data is prepared by 1) Data preprocessing 2) Normalization and 3) Data transformation. The feed forward Multi-Layer Perceptron (MLP) Neural Network with backpropagation training algorithm is employed in the design of the intelligent system. The neural network is trained and tested with the data prepared. The experimental results portray the effectiveness of the proposed system in predicting pest population dynamics of Thrips on cotton crop. Moreover, a comparative analysis is performed between the proposed system and two of the existing works. The results showed that the proposed system based on feed forward
neural networks was best suited for effective pest prediction.

References

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Index Terms

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Keywords

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Thrips Tabaci Linde

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Backpropagation training Algorithm