

***Development of an Expert System for Diagnosing Hybrid Corn Plant Diseases
Using Forward Chaining and Certainty Factor Methods Based on Website.***

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ABSTRACT

*This research was motivated by the difficulties faced by farmers in identifying hybrid corn plant diseases and the limited access to agricultural experts for accurate diagnosis. This study aims to develop a website-based expert system for diagnosing hybrid corn plant diseases using the Forward Chaining and Certainty Factor (CF) methods. The system is designed to detect diseases such as downy mildew, leaf blight, stalk rot, sheath rot, and leaf spot, and to provide appropriate treatment recommendations. The system was developed using the Laravel framework and MySQL database and evaluated through Blackbox Testing, accuracy testing, and the System Usability Scale (SUS). The results showed that all system features functioned properly, with an accuracy rate of **90%**, indicating that the diagnosis results were closely aligned with expert validation. In addition, the SUS evaluation produced an average score of **73.78**, indicating that the system is categorized as good and acceptable to users. These findings demonstrate that the developed expert system can assist farmers in conducting early disease diagnosis more quickly, easily, and accurately.*

Keywords: *expert system, Forward Chaining, Certainty Factor, hybrid corn plant diseases, disease diagnosis, website.*