

## **ABSTRACT**

### **A WEB-BASED EXPERT SYSTEM FOR SOYBEAN PLANT DISEASE DIAGNOSIS USING FORWARD CHAINING METHOD**

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*The Ministry of Agriculture of the Republic of Indonesia estimates that Indonesia's soybean production will continue to decline from 2021 to 2024. The decline in local soybean production is caused by many factors, one of which is the threat of diseases that attack soybean plants so that soybean crops fail. Diseases that often attack soybeans include bacterial wilt, root rot, leaf rust, dwarf virus, stem rot, leaf spot, anthracnose, downy mildew, bacterial pustules, and mosaic viruses. Each disease has its symptoms and different ways of handling it. This causes the presence of an expert indispensable for farmers' educational purposes. However, an expert cannot always conduct education because it requires rest. Therefore, the researcher aims to create an expert system for diagnosing soybean diseases with a website-based forward chaining method that can assist experts' performance. An expert system is a computer program that contains knowledge about a specific field from one or more human experts to solve a problem. This expert system was built using the PHP programming language and MySQL database management. The method applied to the expert system is the forward chaining method of drawing conclusions based on existing facts. The results of this study are an expert system for diagnosing soybean diseases using a website-based forward chaining method. Tests were carried out using the Blackbox method to test functionality and Confusion Matrix to test accuracy. The results of the accuracy testing carried out obtained a value of 83.3%.*

**Keyword :** Soybean, Expert System, PHP, MySQL, Forward Chaining.