

## ABSTRACT

The production of water spinach vegetable crops in 2020 in Central Java ranks 2nd as the largest kale production at 29,108 tons, Indonesia exports ornamental plants to kale seeds to tomatoes to surrounding countries. Chief Minister for Economic Affairs Airlangga Hartarto (2021) observed and appreciated the export release of floriculture and vegetable seeds by participating in the floriculture which took place at Minaqu Home Nature, Jungle Fest Bogor. According to Airlangga, the value of floriculture has increased in the last 3 years. In 2018 the export value was US\$12.07 million, in 2019 US\$13.53 million (up 12.1%) and in 2020 it increased significantly to US\$19.98 million. It can be concluded based on these data that water spinach plants have increased the amount of production, the risk of being attacked by pests and diseases will be even greater and proper and proper care is needed to improve the quality of kale in the following year. Therefore it takes an expert to convey knowledge about how to control pests and diseases properly and correctly. From these problems, an expert system was made to overcome the above problems, this expert system uses the forward chaining it can work optimally in determining conclusions when the problem starts from collecting data or facts, in this case the symptoms that appear in kale plants. The results of this study are an expert system for diagnosing pests and diseases on kale using a forward chaining -based website with accuracy testing using the confusion matrix by testing 50 rules, and from 50 rules the results of 5 are less appropriate and 45 rules are assessed according to the accuracy of the system. with a percentage of 90%.

**Keywords : Diagnosis, Pests, Diseases, Water Spinach, Expert Systems, Forward Chaining, Confusion Matrix.**