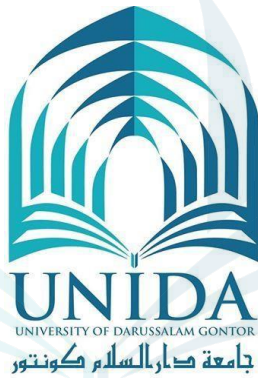


**THESIS**

**STUDY OF LIQUID ORGANIC FERTILIZER AND  
SEDLING AGE ON VEGETATIVE GROWTH OF  
KALE (*BRASSICA OLERACEAE V. RED RUSSIAN*)  
HYDROPONICALLY IN THE LOWLANDS**



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**FACULTY SCIENCE AND TECHNOLOGY**

**DARUSSALAM GONTOR UNIVERSITY**

**2025**

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VEGETATIVE GROWTH OF KALE (*Brassica oleracea* V. *REB*  
RUSSIAN) HYDROPONICALLY IN THE LOWLANDS

Prepared and Presented by  
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## STATEMENT OF ORIGINALLY THESIS


The one listed below:

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Hearby state that as follows:

1. Thesis entitled: **Study Of Liquid Organic Fertilizer And Seedling Age On Vegetative Growth Of Kale (*Brassica Oleracea* V. Red Russian) Hydroponically In The Lowlands.**
2. The research carried out is author's own work.
3. Any ideas or quotations or other forms in this thesis, have been recognized in accordance with the standard procedures of the discipline.
4. The author also admits that this thesis can be produced thanks to the guidance and support of the supervisors, namely: Mahmudah Hamawi S.P., M.P. and Haris Setyanigrum S.Si., M.Sc.

If in the future in this thesis thing are found that show that academic fraud has be done, the author is willing to withdraw the bachelor's of the S1 Agrotechnology department, Faculty of Science and Technology, University Darussalam Gontor.

Neawi 10<sup>th</sup> Desember 2024  
  
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## WORDS OF DEDICATION

*Assalamu 'alaikum warahmatullahi wabarakaatuhu*

All praise and gratitude go to Allah SWT, the One True God, who has given His grace, guidance, and gifts. With His guidance, the author was given ease in completing the writing of this thesis. Shalawat and salam may always be poured out to the Prophet Muhammad SAW, who has guided mankind from the age of darkness to the age of full knowledge as we enjoy today. Although there are many challenges in the process of writing this thesis, thanks to the help and support of various parties, all these obstacles can finally be overcome. Therefore, the author would like to express her deepest gratitude to:

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Hopefully all the help, support and prayers that have been given will be a Jariyah charity and get the best reward from Allah SWT. Finally, I apologize for all

the shortcomings that exist in the preparation of this thesis. the author realizes that this thesis is still far from perfection, therefore the author really appreciates all suggestions, input, and constructive criticism for further improvement. hopefully this thesis can provide benefits and positive contributions for all parties. Thank you.

*Wassalamu'alaikum warahmatullahi wabarakaatuhu*

Ngawi, 10 December 2024



Farah Salsabila Akhmadi



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## FOREWORD

Alhamdulillahirabbil'Alamin, All praise and gratitude to Allah SWT who has bestowed His grace, guidance, and gifts so that the author can complete the thesis with the title "**Study of Liquid Organic Fertilizer and Seedling Age on Vegetative Growth of Kale Plants (*Brassica Oleraceae* V. Red Russian) Hydroponically in the Lowlands**". This research has been carried out in the hydroponic green house of the Agrotechnology study program, Faculty of Science and Technology, Universitas Darussalam Gontor Putri. This thesis was prepared to fulfill the final assignment of the Bachelor Program (S1) in the Agrotechnology department. This study aims to identify the effect of LOF and seedling age on the vegetative growth of kale (*Brassica oleraceae* v. Red russian) grown hydroponically in lowland areas. Addition, this research can also be an evaluation material in developing the knowledge gained during the lecture period. Hopefully what the author has conveyed in this thesis, is useful for the author and the whole community, especially in the field of agriculture.

