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ON [illegible] QUALITY OF
[illegible] (Brassica rapa L.)

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2010

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Effects of organic and inorganic fertilizers on growth and post-harvest quality of chinese vegetable (Brassica rapa L.) / Le Wei Shin.

EFFECTS OF ORGANIC AND INORGANIC FERTILIZERS ON GROWTH AND POST-HARVEST QUALITY OF CHINESE VEGETABLE (*Brassica rapa* L.)

By
Lee Wei Shin

Research Report submitted in partial fulfilment of
the requirements for the degree of
Bachelor of Agrotechnology Science (Post Harvest Technology)

Department of Agrotechnology
FACULTY OF AGROTECHNOLOGY AND FOOD SCIENCE
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ENDORSEMENT

The project report entitled **Effects of organic and inorganic fertilizers on growth and post-harvest quality of Chinese vegetable (*Brassica rapa* L.)** by **Lee Wei Shin**, Matric No**. UK 15331** has been reviewed and corrections have been made according to the recommendations by examiners. This report is submitted to the Department of Agrotechnology in partial fulfilment of the requirements for the degree of Bachelor of Science Agrotechnology (Post Harvest Technology), Faculty of Agrotechnology and Food Science, Universiti Malaysia Terengganu.

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DECLARATION

I hereby declare that the work in this thesis is my own except for quotations and summaries which have been duly acknowledge.

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ACKNOWLEDGEMENT

I would like to express my deepest gratitude to my final year project supervisor, Dr. Chuah Tse Seng for his attentive supervision and patience in assisting me upon the completion of this project. I would like to thank my co-supervisor Dr. Adzemi Mat Arshad for his guidance in many laboratory works and encouragements for me throughout this project. Also, I would like to thank Ms. Roshita Ibrahim for her advice and suggestion in writing thesis. Special thanks to Mr. Mazlan Kassim and Mr. Shahrul Zanudin in greenhouse for their experience in the field, Madam Maizatul Akmal Ab. Rahman, Mr. Mohd Fauzi Jusoh, Mr. Ruzairie Hussin and Ms. Nurud Iliani Suhaimi for assisting me with the use of laboratory chemicals and equipments during the assessments in experiment. I would also like to thank my course mates for their help and support as I accomplish this project. Thanks to Zenxin Agriculture Sdn. Bhd. and Wellgrowth Biotech Sdn. Bhd. for the fertilizer samples. Thanks also to all that have not been mentioned of their name but have contributed to the success of this project. Last but not least, I thank God for He is faithful and had blessed me the renewing strength and wisdom to the success of this project.

ABSTRACT

A dwarf type Pak Choi (*Brassica rapa* L.) was cultivated using sandy loam soil in a greenhouse. Organic and inorganic fertilizer treatments were tested for their effects on the growth and post-harvest quality of the vegetables. Four commercial fertilizer treatments including chicken manure (CKN), vermicompost (VER), foliar biofertilizer (FOL), chemical fertilizer (CHE) and control treatment with no fertilizer (CTL) were applied at their respective recommended rates. Assessment was done on the growth parameter, visual quality of the vegetables, colour, plant pigments, firmness, and nutrients contents of the plants. The results show that the growth and post-harvest quality of the vegetables were significantly affected by different types of fertilizer. CHE had advantages over other treatments in attaining maximum growth and high essential nutrient levels but exhibited poor visual quality and low firmness of the leaves. The organic fertilizers gave marginal effects on the nutrients contents of plants, except FOL had positive effects on P, Ca, Mg, Cu, Fe and Mn contents of the plants. Overall, VER and FOL were not able to enhance the growth and quality of *B. rapa*. CKN has significantly enhanced the visual appearance and firmness of leaves better than other treatments, thereby serving as good attributes for consumers to choose organic vegetables instead of conventionally grown vegetables.

ABSTRAK

Sawi Jepun (*Brassica rapa* L.) ditanam dengan menggunakan tanah lempung berpasir di rumah hijau. Kesan pembajaan organik dan pembajaan kimia dikaji terhadap pertumbuhan dan kualiti lepas tuai sawi. Tiga jenis baja organik iaitu tahi ayam (CKN), vermikompos (VER), biobaja untuk aplikasi daun (FOL), baja kimia (CHE) dan kawalan tanpa baja (CTL) ditabur ke dalam tanah pada kadar yang disyorkan masing-masing. Penilaian dilakukan ke atas parameter pertumbuhan, kualiti visual sawi, warna, pigmen tumbuhan, kesegahan dan nutrien dalam sawi. Keputusan kajian menunjukkan bahawa pertumbuhan dan kualiti lepas tuai sawi adalah dipengaruhi oleh jenis pembajaan yang berbeza. CHE mempunyai kelebihan dalam mencapai pertumbuhan maksimum dan kandungan nutrien yang tinggi berbanding baja yang lain tetapi mempunyai kualiti visual dan kesegahan daun yang rendah. Pembajaan organik menunjukkan kesan yang kurang ketara pada kandungan nutrien sawi, kecuali FOL yang mempunyai kesan positif dari segi kandugan P, Ca, Mg, Cu, Fe dan Mn dalam tumbuhan. Secara keseluruhannya, VER dan FOL tidak dapat meningkatkan pertumbuhan dan kualiti lepas tuai sawi. CKN dapat meningkatkan kualiti visual dan kesegahan daun lebih baik berbanding dengan baja lain, dan seterusnya menjadi sesuatu daya tarikan penting untuk menggalakan pelanggan memilih sayur-sayuran organik.