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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.

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UNIVERSITI MALAYSIA TERENGGANU (UMT)
21030 KUALA TERENGGANU

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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
UNIVERSITI MALAYSIA TERENGGANU
2010

EFFECTS OF ORGANIC AND INORGANIC FERTILIZERS
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LEE WEI SHIN

FACULTY OF AGROTECHNOLOGY AND FOOD SCIENCE
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2010

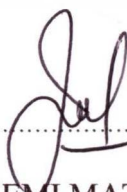
ENDORSEMENT

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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(DR. CHUAH TSE SENG)

Main supervisor

Date:



.....
(DR. ADZEMI MAT ARSHAD)


Co-supervisor

DR. ADZEMI MAT ARSHAD
Ketua
Jabatan Agroteknologi
Fakulti Agroteknologi dan Sains Makanan
Universiti Malaysia Terengganu
21030 Kuala Terengganu.

Date: 26/4/2010

DECLARATION

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

Signature : 
Name : LEE WEI SHIN
Matric No : UK 15331
Date : 26 / 4 / 2010

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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 kandungan 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.