

NITROGEN FERTILIZER MANAGEMENT IN

VEGETABLE SOYBEANS

YINBO GAN

A THESIS SUBMITTED TO THE GRADUATE SCHOOL IN

PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

MASTER OF SCIENCE

(AGRICULTURE)

IN AGRICULTURAL SYSTEMS

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

Copyright © by Chiang Mai University

All rights reserved

CHIANG MAI UNIVERSITY

CHIANG MAI, THAILAND

SEPTEMBER 1993

NITROGEN FERTILIZER MANAGEMENT IN
VEGETABLE SOYBEANS

YINBO GAN

THIS THESIS HAS BEEN APPROVED TO BE A PARTIAL
FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
MASTER OF SCIENCE (AGRICULTURE)
IN AGRICULTURAL SYSTEMS

EXAMINING COMMITTEE:

B. Rerkasem

(Assoc. Prof. Dr. Banjavan Rerkasem)

CHAIRMAN

Phrek Gypmantasiri

(Mr. Phrek Gypmantasiri)

MEMBER

Anek Chotiyarnwong

(Mr. Anek Chotiyarnwong)

MEMBER

C. Sampet

(Assoc. Prof. Mr. Chalermpon Sampet)

MEMBER

SEPTEMBER 1993

Copyright of The Graduate School, Chiang Mai University

ACKNOWLEDGEMENT

First of all, I would like to express my deepest appreciation, gratitude and respect to Dr. Benjavan Rerkasem, the chairman of my thesis committee, whose invaluable supports, guidance, encouragements and stimulating suggestions in the whole process of the study that enabled me to complete this thesis.

Sincere thanks and respects to also extend to Mr. Phrek Gypmantasiri, Mr. Anek Chotiyarnwong and Mrs. Pimporn Chotiyarnwong for their keen interests, encouragements and helps in outlining the research problem and providing valuable comments at the stage of formulating the experimental design.

Comments and criticisms from the other member of my thesis committee, Assoc. Prof. Mr. Chalempone Sampet are gratefully acknowledged. Sincere gratitude and profound appreciation also go to Dr. Tavachai, my academic advisor, for kind support and advice during my entire graduate program.

Sincere thanks are also extended to the officers and staff of MCC for providing various forms of assistance and helps during the whole study period, particularly, Mr. Sithichai Lodkaew for the laboratorial work, Mr. Jamlong Pothachareon for the field experiment management and Khun Nuansi and Khun Woraluck for the administrative help and assistance.

My colleague students in the Agricultural Systems Program have shown their genuine kindness and friendships during the two years graduate study, particularly, Zhong, Cheng, Sanzidur, Bijaya, Naba, Arunee, Well, Pant, Milan, Gauchan, Tospol, Lung, Chen and Fan.

Special thanks are due to Ford Foundation (China) for their generous scholarship support and Hubei Academy of Agricultural Sciences (HAAS) for providing me with the study leave which enable me to complete a Master degree program at the Chiang Mai University. Encouragements from Associate Professor Liwan Ao, Professor Shifang Tang, Associate Professor Shijin Liang, Associate Professor Guoqiang Han and Mr. Jinshu Shu of HAAS have been gratefully acknowledged.

Center for Agriculture in the Tropics and Subtropics at the University of Hohenheim in Germany is specially mentioned for providing scholarship through The Father and Son Eiseilen Foundation for participating the course on " legumes in Cropping Systems of the Tropics and Subtropics " from June 7 to June 30, 1993. Moreover, special thanks are also extended to Dr. Christoph E. Mann from CIMMYT (Thailand) for his invitation for the participation on " the 14th National Temperate Cereals Conference: Research and Development for Southeast Asia " in Thailand and BARI-CIMMYT International Conference on " Wheat in Warm Area, Rice-Farming Systems " held at the Dinajpur, Bangaladash from February 13 to February 15, 1993.

Finally, I wish to express my sincere thanks to my mother, who is my source of inspiration and dedication and also my brothers and sisters and friends (Min Wu, Zhibei Lin) for their encouragements and understandings throughout my stay in Thailand.

Copyright© by Chiang Mai University
All rights reserved

Yinbo Gan