



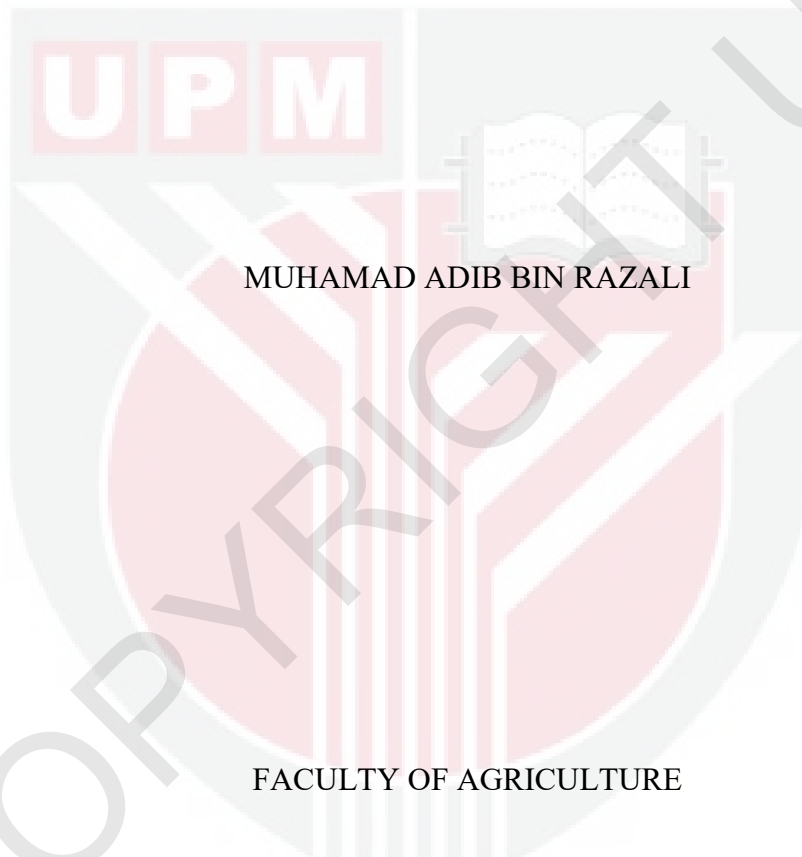
**UNIVERSITI PUTRA MALAYSIA**

**PERFORMANCE OF CHILLI SEMERAH (*Capsicum annum*)  
AS INFLUENCED BY DIFFERENT RATES OF NITROGEN**

**MUHAMAD ADIB RAZALI**

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SERDANG, SELANGOR

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By

**MUHAMAD ADIB BIN RAZALI**

A project report submitted to the Faculty of Agriculture, Universiti Putra Malaysia in  
fulfillment of the requirement of PRT4999 (Final Year Project) for the award of the degree  
of Bachelor of Agriculture Science

FACULTY OF AGRICULTURE  
UNIVERSITI PUTRA MALAYSIA  
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## CERTIFICATION

This study report entitled “PERFORMANCE OF CHILLI SEMERAH (*Capsicum annum*) AS INFLUENCE BY DIFFERENT RATES OF NITROGEN” is prepared by Muhamad Adib Bin Razali and submitted to the Faculty of Agriculture in fulfillment of the requirement of PRT4999 (Final Year Project) for the award of the degree of Bachelor of Agricultural Science.

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## LIST ABBREVIATIONS

ANOVA	Analysis of variance
N	Nitrogen
P	Phosphorous
K	Potassium
NH <sub>4</sub> <sup>+</sup>	Ammonium
Ca	Calcium
cm	Centimeter
g	Gram
kg	Kilogram
ha	Hectare
RCBD	Randomized Complete Block Design
CMV	Chilli Mosaic Virus
SSD	Single Seed Descent

## ABSTRACT

Chilli Semerah is a new variety of chilli species that is categorized as *Capsicum annum*. Chilli Semerah can produce yield that are matured at the same time, thus reducing the cost of labour to pluck the chilli fruits. This experiment was conducted at Ladang 10, Universiti Putra Malaysia (UPM), to determine the effect of different rates nitrogen (N) fertilizer on growth and yield of chilli Semerah. The experimental design that was used in this experiment was Randomized Completely Block Design (RCBD) with four replications. This experiment used four levels of N rates to get the best quantity of N fertilizer that are needed by the plants. The rates of N are 120, 180, 240 and 300 kg/ha. The source of N fertilizer is urea. Meanwhile, Triple Superphosphate (TSP) and Muriate of Potash (MOP) were used as the source of phosphate and potassium for the plants at recommended rates. The parameters measured are plant height, number of leaves, canopy diameter of the plants, number of branches, number of flowers, total number of chilli fruits, weight of chilli fruits and number of fruits set after first harvesting. Data collected were subjected to the analysis of variance (ANOVA) and Least Significant Difference (LSD) test. As a conclusion, nitrogen with Treatment 2 (180 Kg N ha<sup>-1</sup>) was recommended with further finding for increasing the yield production of Chilli Semerah.



## ABSTRAK

*Cili Semerah merupakan varieti cili baru yang dikategorikan sebagai Capsicum annum. Cili Semerah boleh mengeluarkan hasil yang matang pada masa yang sama, sekaligus mengurangkan kos buruh untuk memetik buah cili. Eksperimen ini telah dijalankan di Ladang 10, Universiti Putra Malaysia (UPM), untuk menentukan kesan kadar baja nitrogen (N) yang berbeza keatas pertumbuhan dan hasil cili Semerah. Rekabentuk eksperimen yang telah digunakan didalam eksperimen ini ialah Rekabentuk Rawak Lengkap Berblok (RCBD) dengan empat replikasi. Eksperimen ini telah menggunakan empat tahap kadar N untuk memperolehi kuantiti baja nitrogen yang terbaik yang diperlukan oleh pokok. Kadar N yang digunakan ialah 120,180,240 dan 300 kg/ha. Sumber baja N yang digunakan ialah urea. Sementara itu, Triple Superphosphate (TSP) dan Muriate of Potash (MOP) telah digunakan sebagai sumber fosfat dan kalium pada kadar yang disyorkan. Parameter yang telah diukur ialah ketinggian pokok, bilangan daun, diameter kanopi pokok, bilangan dahan, bilangan bunga, jumlah bilangan buah cili, berat jumlah buah cili dan bilangan set buah selepas tuaian yang pertama,. Data yang dikumpul telah dianalisis dengan analisis varians (ANOVA) dan ujian Perbezaan Signifikan Terkecil (LSD). Kesimpulannya, nitrogen dengan rawatan 2 (180 Kg N ha<sup>-1</sup>) disarankan untuk meningkatkan pengeluaran hasil daripada cili padi Semerah. Namun begitu, ianya memerlukan lagi kajian selanjutnya.*

## INTRODUCTION

### 1.1 GENERAL BACKGROUND

Chilli originally originated from South American and Mexico. Nowadays, chilli are grown in most countries in the tropical region such as Malaysia, Brunei, Thailand, Indonesia, Philippines and others. Research has been persued to produce better varieties through breeding program.

Chilli Semerah botanically referred to as the genus *Capsicum* is a member of Solanaceae. Chilli Semerah is a new variety of chili that was released by MARDI. This type of chili is produced by single seed descent (SSD) method from genetics brought from Mexico. This chilli is the result of a polycross of *Capsicum annum* and *Capsicum frutescens*. Based on the morphological characteristic, it is grouped in *Capsicum annum*.

Chilli Semerah can grow on most soil including bris, peat and tin tailings. The best pH to grow chilli is pH 5.5-6.8. Lime is needed for soil having low pH such as acid sulphate soil. Rainfall that is needed to grow chilli is 1500-2000 mm/year.

The advantage of chilli Semerah is it can produce high yield and mature at the same time. The other advantage is it tolerance to chilli mosaic virus (CMV). When it was attacked by the CMV, it still can produce the fruits but the size is small.

Fertilizer is one of the most important aspects for plant growth. All plants need fertilizer as their food to get nutrients for their growth and metabolism process. Fertilizer also play important role to make the plant healthy and grow well. Plants that did not get enough fertilizer will be easily attack by disease.

Fertilizer contains elements that are needed by the plants such as nitrogen, potassium, phosphorus, calcium and others. Fertilizers are divided into two types that is organic and chemical fertilizers. Organic fertilizer are fertilizer that comes from waste that are produce by living things such as chicken dung, Empty Fruit Bunch (EFB), compost and other sources. Chemical fertilizer is a fertilizer that is produced by a chemical process that can provide elements that are needed by plants in the correct amount.

All crops need N for their growth. N is the most important element in the formation of proteins and also needed in the process of plant growth. Urea is one

of the sources of N fertilizer that can give N to the crops. The N content in urea is 46%.

Hence, the objectives of this experiment are to determine the impact of N fertilization on growth of Chilli Semerah (*Capsicum annum*) and to find the optimum N rate for Chilli semerah cultivation.



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