ANALYSES OF SOIL CHEMICAL PROPERTIES ON MINERAL SOIL AND PEAT SOIL TOWARD GROWTH PERFORMANCE OF PINEAPPLE (MD2)

NUR SYAHIDAH BINTI ABDUL JALIL

Final Year Project Report Submitted in
Partial Fulfilment of the Requirements for the
Degree of Bachelor of Science (Hons.) Plantation Management and Technology
in the Faculty of Plantation and Agrotechnology
Universiti Teknologi MARA

JANUARY 2019

ACKNOWLEDGEMENTS

Bismillahirrahmanirrahim,

Alhamdulillah, thanks to Allah SWT, to whom ALLAh has given me opportunity, healthy, and happiness along the journey to me prepare and completing my Final Year Project entitled Analyses of Soil Chemical Properties on Mineral Soil and Peat Soil Toward Growth Performance of Pineapple (MD2) for my Degree of Bachelor of Science (Hons.) Plantation Management and Technology.

Firstly, I would like to thank to my beloved parents Abdul Jalil Bin Mohd Aris and Rohachik Bte Abd Rahim and family for their support, encouragement and motivate me before, now and ever.

I would like to express my deepest appreciation and a lot of thanks to my supervisor, Madam Salwa Binti Hj. Adam for her inspiring guidance, generous assistance, cooperation, and very valuable advice help me to completing my Final Year Project. A special thanks to Mohd Khairol Izam Bin Nor Azman, the staff of MPIB, Johor Bahru, Johor for enabling me visit their office for taking some of the data of pineapple growth performance.

Also, I would like to extend my thanks to the staff of laboratory of the Faculty Plantation and Agrotechnology for help in offering me the resources in my project.

Lastly, special thanks to my entire friend and lecturers for their encouraging and supporting me to complete this report.

TABLE OF CONTENTS

ABSTRACT

ANALYSES OF SOIL CHEMICAL PROPERTIES ON MINERAL SOIL AND PEAT SOIL TOWARD GROWTH PERFORMANCE OF PINEAPPLE (MD2)

There are confusing facts that the mineral soil is high in nutrient compared to the peat soil but most of pineapple in Malaysia were cultivated on the peat soil. Thus, a set of experiment was conducted to evaluate the relationship of chemical properties on mineral soil and peat soil toward growth performance of pineapple and to compare the early growth performance of MD2 pineapple that were cultivated on mineral soil and peat soil. The chemical properties such as soil pH, cation exchange capacity (CEC), soil salinity and nutrient contents which are phosphorus (P), potassium (K), calcium (Ca) and Magnesium (Mg) from both soil were analyzed. The growth performance (plant height, leaf length, leaf number and leaf width) of pineapple cultivated on different type of soil also were measured. Results showed peat soil significantly ($p = 0.00$) more acidic (3.49) compared to mineral soil (5.38). The pH of soil was influenced cation exchange capacity (CEC) of the soil which the CEC of mineral and peat soil was 18.85 $cmol_c kg^{-1}$ and 2.82 $cmol_c kg^{-1}$ respectively. Salinity of both soil indicate it was suitable for pineapple growth which between 1-2 dS/m. Mineral soil content high nutrient compared to peat soil especially for Ca (626.81 mg/L) and Mg (45.55 mg/L) content which contribute to high pH. While peat soil significantly high in P and K content compared to mineral soil. However, the growth performance of pineapple cultivated on both type of soil shows no significant difference ($p \geq 0.05$) except for leaf width. Furthermore, there were no relationship between chemical properties of soil toward growth performance of pineapple.

Keywords: soil, peat, mineral, chemical properties, growth performance