NITROGEN AND POTASSIUM FERTILIZATION OF VIRGINIA TOBACCO (*NICOTIANA TABACUM* L.) IN A SANSAI SANDY LOAM

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Submitted to the Institute of Graduate Studies, Central Luzon State University, Muñoz, Nueva Ecija, Philippines in Partial Fulfillment of the Requirements for the Degree of

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The thesis attached hereto, entitled "NITROGEN AND POTASSIUM FERTILIZATION OF VIRGINIA TOBACCO (NICOTIANA TABACUM L.) IN A SANSAI SANDY LOAM", prepared and submitted by VUT ANANBOONTARICK in partial fulfillment of the requirements for the degree of Master of Science in Crop Science (Agronomy) is hereby accepted.

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BIOGRAPHICAL SKETCH

Vut Ananboontarick was born on July 29, 1956 in Bangkok, Thailand. He is the second from the eldest of the nine children born to Mr. Limthong and Mrs. Thongbei Ananboontarick.

He finished his primary education at Nimmanorradee School, Bangkok in 1968. He took his secondary education at Noannorradit School, Bangkok in 1973. He obtained his Bachelor of Science in Agriculture degree (Soil Science) with honors at Chiangmai University in 1977.

After graduation, he worked for one year as research assistant in Multiple Cropping Project, Faculty of Agriculture, Chiangmai University. In 1978, he worked as a researcher in Soil and Fertilizer Division, Maejo Tobacco Experiment Station, Chiangmai, Thailand. In 1983, while doing research, he applied to pursue a Master's degree in Crop Science (Agronomy) and minor in Soil and Water Management at the Central Luzon State University, Muñoz, Nueva Ecija, Philippines.

He is happily married to the former Varaporn Kungsorn. She is a researcher of the Division of

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ABSTRACT

ANANBOONTARICK, VUT, Institute of Graduate Studies, Central Luzon State University, Muñoz, Nueva Ecija, Philippines, February 1985. Nitrogen and Potassium Fertilization of Virginia Tobacco (Nicotiana tabacum L.) in a Sansai Sandy Loam.
Major Adviser: Dr. Miguel L. Aragon

A study was undertaken to determine the effects of N and K fertilization on the yield, yield components, quality, and nutrient content of Virginia tobacco in a Sansai sandy loam. The field experiment was conducted at the Maejo Tobacco Experiment Station, Chiangmai, Thailand, during the rainy season of 1984.

Four levels of N and K were used: 0, 50, 100, and 150 kg for N; and, 0, 120, 240, and 360 kg for K/ha. The treatments were laid out in a factorial experiment in RCBD with three replications.

The weight of fresh and cured leaves increased correspondingly as the level of N and K was increased from 0 to 100 kg/ha and from 0 to 240 kg/ha, respectively. With 150 kg N/ha, there was a reduction in the weight of cured leaves. In terms of the weight of fresh leaves, 150 kg N + 360 kg K/ha outyielded

all other treatments, however, in terms of the weight of cured leaves, 100 kg N + 240 kg K/ha seemed to be satisfactory with yield of 3.4 t/ha.

The weight of cured leaves was positively correlated with N and K fertilization. The maximum levels of N associated with the maximum yield at 0, 120, 240, and 360 kg K/ha were 100.00, 112.67, 117.17, and 117.83 kg/ha, respectively. The response function to increasing K was linear, hence, the maximum level of K to be applied to obtain the maximum yield was not determined.

The leaf length and width showed effects of N and K fertilization while the number of leaves harvested and the specific leaf weight remained unaffected. The quality of Virginia tobacco was improved with N and K fertilization, however, application of N higher than 50 kg/ha reduced the quality of tobacco leaves. The best quality leaves was obtained at 50 kg N + 240 to 360 kg K/ha. Based on crop value, 50 kg N + 120 kg K/ha with 99.50 thousand Bath/ha appeared to be satisfactory for tobacco production.

Application of N and K fertilizers, regardless of level, improved the nutrient status of the plant and corrected deficiency symptoms for both N and K.

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