

EFFECTS OF SOIL FERTILIZATION ON YIELD, FRUIT QUALITY AND MINERAL CONTENT OF KHUDARI DATE PALM VARIETY

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ABSTRACT

Effect of 7 fertilizer treatments consisting of (N P K fertilizers and organic manure) on yield and fruit quality of Khudari date palm variety, grown at College of Agriculture farm, King Saud University, was studied during 1980 and 1981 seasons. Results showed that chemical fertilizers increased the yield of trees as compared with the organic manure. Some of the physical and chemical characteristics of the fruits were also affected by the chemical fertilizers during both seasons. Soil fertilization did not produce significant effect in the mineral content (N, P, K, Ca and Mg) of the fruits and the leaves.

INTRODUCTION

Date palm (*Phoenix dactylifera*, L.) is an economically important crop of Saudi Arabia. The general belief among Saudi growers is that date palm can grow and fruit successfully with addition of only organic manure without any inclusion of chemical fertilizers.

The present study was therefore carried out to investigate the effect of chemical fertilization on yield, fruit quality and mineral content of fruits and leaves of Khudari date palm variety grown in Riyadh region.

MATERIALS AND METHODS

This study was carried out at the College of Agriculture, King Saud University, during the growing seasons of 1980 and 1981.

Forty two Khudari trees of uniform vigor planted at a spacing of 7 × 7 meters were selected. The soil was clay loam, pH 7.6.

Seven fertilization treatments used are given in table 1. Each treatment consisted of two trees, replicated three times. Replications were separated by guard trees.

Nitrogen was applied in the form of ammonium sulphate (21% N).

Phosphorus was applied in the form of calcium super-phosphate (45-47% P₂O₅)

Potassium was applied in the form of potassium sulphate (50% K₂O).

Organic manure was added in January 1980 and 1981. Each year N fertilizer was added in three equal doses, on March 15 (before flowering), May 15 (fruit setting) and July 1 (fruit maturity). The P and K fertilizers were added once each year, on March 15. All trees received similar cultural practices e.g. irrigation, pollination, etc.

Fruits were harvested during the second week of August of each year. Number of bunches and yield per palm was recorded.

A sample of 50 fruits was taken from each tree for physical and chemical quality determinations. Physical characteristics included, fruit weight, volume, diameter and length. Whereas, chemical characteristics included, total soluble solids (T.S.S.),