A STUDY ON THE SOIL AND MECHANICAL FACTORS AFFECTING THE DESIGN OF WIRE POSTS FOR VINEYARDS

By

AHMED ABOU EL-HASSAN ABD EL-AZIZ OTHMAN

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By

AHMED ABOU EL-HASSAN ABD EL-AZIZ

B. Sc. Agr. Science (Mechanization)

Ain-Shams Univ. 1983

This Thesis for M. Sc. Degree has been approved by:

Prof. Dr. S. A. Tayel — S. A. Tayel
Prof. and Head of Ag. Eng.
Col. of Agric., Azhar Univ.

Prof. Dr. A. L. El-Tomi — A. L. El-Tomi
Prof. of Pomology, Horticulture Department
Col. of Agric., Ain Shams Univ.

Prof. Dr. M. N. El-Awady — M. N. El Awady
Prof. Ag. Eng.; Head of Soil Dept.
Col. Agric., Ain Shams Univ.

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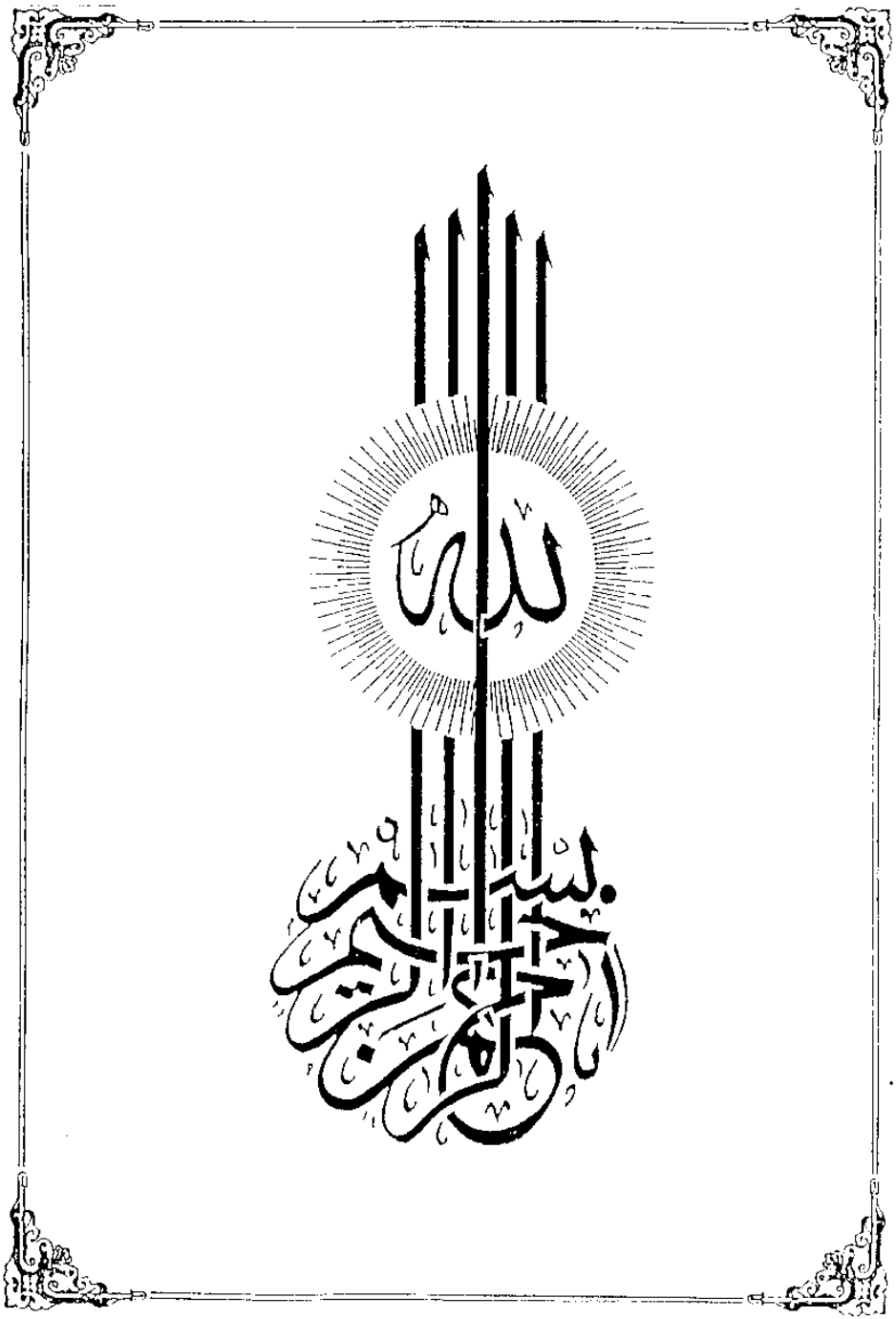

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AHMED ABOU EL - HASSAN ABD EL-AZIZ

B. SC. AGRIC., SOIL SCI. (MECHANIZATION) FACULTY OF AGRIC., AIN-SHAMS UNIV., 1983

Under the Supervision of:

Prof. Dr.: M.N. El-Awady

Prof. of Agric. Eng. and Head of soil Dept.

Dr. Z.H. Behainy

Assoc. Prof. of Horticulture

Dr. M.M. Hegazi

Assoc. Prof. of Agric. Mechanization

ABSTRACT

This study was carried out on two medels of the grape supporting to solve some problems which encounter the growers especially in the sandy soils including failure of the wire posts and the encountered expenses.

Dimensional analysis was used to study the effect of different factors. Results gave the following general equations:

$$F = (0.66\ d/h).\ PW^2$$

$$(15.5\ d/h + 10\ D/h - 3.9)/10^2$$

(for inverted conical block)

$$(15\ d/h + 18\ D/h - 0.75)/10^2$$

(for spherical anchor)

Where:

F = Max. pull resistance, N

d = Depth of post or concrete block, cm

W = Width of post, cm

D = Diameter of concrete block, cm

P = Penetration resistance, N/cm^2

h = Height of pull force above the ground surface, cm.

Finally, economical study was carried out to determine costs of the posts, concrete and wires requirement per faddan of vineyards. Costs of 3603 L.E (for the strut supports) and 2378 L.E (for anchored post were found).

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C O N T E N T S

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

INTRODUCTION

Growing grapes is one of the oldest agricultural practices. Many references are made in the Bible to growing grapes. Seeds of grapes were discovered in ancient Egyptian tombs, dating from about 3000 B.C.. Fossil remaine of grapes were found. (Schneider and Scarborough, 1960).

The grape is considered one of the leading fruit crops in the Arab Republic of Egypt. Grapes are highly profitable to growers and usually meet a good market for this reason. Grape acreage has increased in the last years as shown in table (1).

Table 1: Grape area in ARE during 1949-1987.

The area in feddans			
Year	Egyptian regain	Year	Egyptian regain
1949	14790	1975	42100
1959	20348	1981	64000
1966	24000	1986	72485
1969	39000	1987	76411