بسم الله الرحمن الرحيم

شبكة المعلومـــــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

﴿ قـــسـم ﴾

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون آية تغيرات

يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %

بعض الوثائق الأصلية تالفة

بالرسالة صفحات

لم ترد بالأصـــل

Variability in Cotton Seed Quality: Its Measurements and Use.

BY

Raw'aa Senan EL-Sheikh Atteia

B.Sc. (Agronomy),
Fac. of Agric. Allepo Univ.,Syria 1995

THESIS

Submitted in Partial Fulfillment of the Requirements for the Degree of

MASTER OF SCIENCE
In
Agricultural Science
(Agronomy)

Department of Agronomy
Faculty of Agriculture
Cairo University

2001

Cairo University
Faculty of Agriculture

Supervision Sheet

Titel: Variability in Cotton Seed Quality: Its Measurements and Use.

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ABSTRACT

This study was initiated to facilitate the utilization of commercial cultivars in breeding for high cotton planting seed quality in the Egyptian cotton germplasm by, (1) Describing the genetic variation available for planting seed quality traits among commercial cotton cultivars when evaluated over space and time,(2) Determining the phenotypic and genotypic associations among traits, and (3)Identifying and describing ten commercials cotton cultivars for their seed quality traits and identifying the ones that show the greatest potential as source material for breeding high planting seed quality cultivars in the Egyptian cotton germplasm.

Ten cotton entries, including nine cultivars (G.45, G.70, G.80,G.83,G.85,G.86,G.88,G.89andG.90) and one experimental line(G.87), were used as plant materials for this study. Field trails were conducted during the two successive years (1999-2000), in Egypt, at ten locations (Sohag, Assuit, Minia,Beni-Suif,Fayum,Menofia, El-Beheira,Kafr-El-Sheikh, Dakahlia and Domiatta) located in the main production area of Egyptian cotton belt in the first season.However in the second season only the five last locations were sampled for experimentation.

Entries were evaluated in the same experimental design for all locations i.e.,randomized complete block design with four replications. Seed quality traits studied are:Seed index (g),

A-A-Abd El-Zahab

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seed volume (size,cm^3), seed density (wt/volume, $g.cm^{-3}$). immaturity (%), rate of imbibiton(%), seed purity (%), analytical purity (%), germination test (Germination capacity,G.C.,%; germination velocity ,G.V.,%; and germination index ,G.I.,days) and pure live seed %. This study indicated that:1) Genotypes differed highly significantly for all planting cotton seed characteristics studied in the three combined analyses, across years and locations in Analysis1, combined locations within 1999 season in Analysis 2, and combined data over 15 environments (combinations of 10 locations at 1999 and five locations in 2000) in Analysis 3. 2). Cultivars G.88 and G.89 are characterized with its high density seeds, and were recommended as suitable material to be involved in any future breeding program designed for this porpuse.3) Seed density is a good measure of seed maturity 4)El-Beheira, Menofia, Minia, Beni-Suif,and Sohag may be designated as suitable locations for producing high quality planting cotton seeds.5)Variations in light immature red seeds are due to environmental effects, expressed as locations and years and their interactions with genotypes. Observations indicate the need for the exploration of environmental and genetic factors that are associated with seed maturity and processors and engineers should continue their search for a practical means of removing immature, red cotton seeds at the time of processing.

A. A. Abo El-Zahab

ACNOWLEDGEMENT

First of all, ultimate thanks are due to Allah,
who without his aid this work could not be done.

I wish to express my deepest gratitude and appreciation to ***Prof. Dr. Abd El-Wahab A. Abo El-Zahab***, professor of agronomy, Faculty of Agriculture, Cairo University for suggesting the problm. Supervision, encouragement and sincere help throughout the course of this investigation and multi-revision of the manuscript of the thesis.

Sincere thanks are extended to ***Dr.Adel Abd El-Moniem HobAllah*** Associate Professor of Agronomy, Faculty of Agriculture, Cairo University, and ***Prof.Dr.Hamdi Bayoumi Ibrahim*** ,Head of Regional Evaluation Cotton research Department . Cotton Res. Institute, ARC, Giza, Egypt, for their supervision, advice and guidance during the course of this stady.

A heartfelt appreciation to all staff members of Cotton Department. For their kind assistance.

Last but not least, I would like to express my great gratitude to my parents for their patience and help and to my husband ***Majed Mawlood Solayman*** for his great help.

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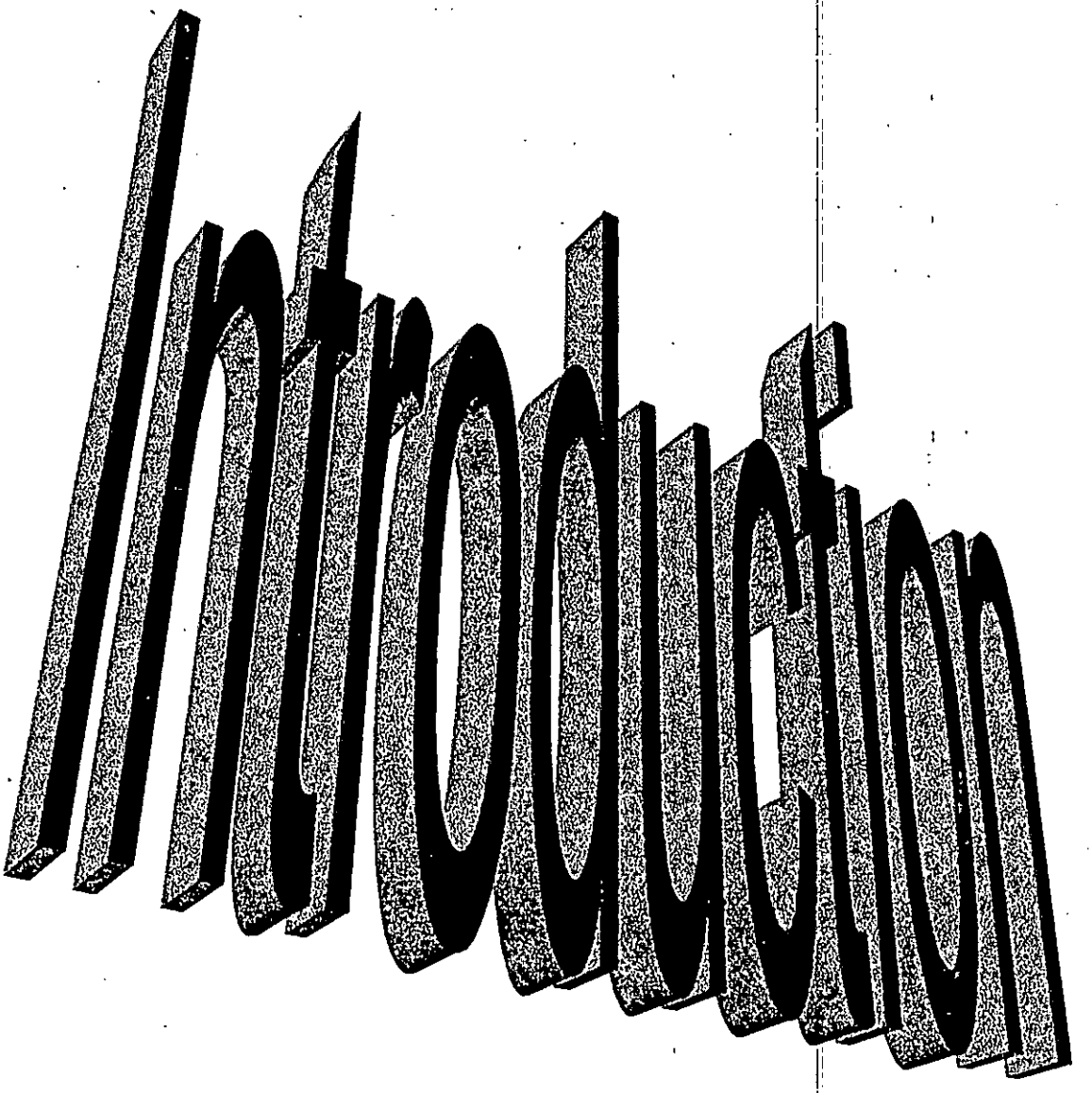
Introduction

1-INTRODUCTION

Identification and use of high-quality planting seed is a priority of cotton growers in Egypt. High-quality seed has been shown to emerge faster (Kerby et al.,1987).emerge from lower depths, produce taller plants (Bird and Reyes,1967),and produce higher yields (Christiansen, 1967). The value of cottonseed used for planting is determined initially by their ability to germinate rapidly, support vigorous seedling growth, and produce an acceptable yield (Cherry and Leffler, 1984).

Production of cotton depends upon obtaining a timely stand of uniform, healthy, vigorous plants. Seed quality is important in obtaining such stands. However, uniform, high-quality cottonseed is often difficult to obtain because seed quality can be affected by numerous factors during (Quisenberry and Gipson, 1974) and after production (Bird , 1975).

Germination, stand, and yield have been improved by use of the larger, heavier, or more dense seed from various lots, including seed previously graded for planting (Porterfield and Smith, 1956; Kunz et al., 1969; Tupper et al., 1970). Poor quality and low density seeds have been associated with a high incidence of disease (Chester, 1938; Arndt, 1945; Minton and Bird, 1968).

In general, poor-quality seeds will show symptoms typical of seed aging, such as low viability, reduced germination and emergence rates,