SEED TUBER PRODUCTION RESISTANT AGAINST SOME DISEASES USING TRUE POTATO SEED (TPS)

BY

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B.Sc. Agric. Sc. (Horticulture), Aleppo University (Syria), 1998

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ABSTRACT

Nizar Kamel Hammoud. Seed Tuber Production Resistant Against Some Diseases Using True Potato Seed (TPS). Unpublished M.Sc. dissertation, Ain Shams University, Faculty of Agriculture, Department of Horticulture, 2005.

Seven true potato seed (TPS) hybrids were evaluated at the International Potato Centre station (CIP) at Kafr El-Zayat, El-Gharbia governorate, Egypt during 2002 to 2004 seasons. This study aimed to develop the agricultural practices for potato production from seedling tubers appropriate to grower's capabilities in Egypt. Using the new technique of potato cultivation by TPS in Egypt, as an alternative method for production, to decrease the importation of seed tubers from European countries every year. The optimum plant population in the nursery bed was 100 plants per m^2 spaced at 10 cm x 10 cm. The results showed a promised productivity of seedling tubers produced from the hybrids Serrana x TPS 67, HPS I/67and HPS II/67 in which had the highest yields in both seasons.

The average yield of the tested progenies of (G1) ranged from 20.56 t/ha to 32.15 t/ha. The most promising hybrids for potato production were HPS II / 67 (30.95 to 32.15 t / ha) for the fall season and HPS I / 67 (29.82 to 30.62 t /ha) for the spring season.

The yields obtained were 32.68, 31.59 and 25.76 t/ha from second generation tubers of HPS I/67, Serrana x TPS 67and the European variety Diamant respectively for the fall season, while in spring season Serrana x TPS 67 had the highest value 31.10 t/ha without significant differences to Diamant variety (29.60).

Infection rate with PLRV and Mosaic was very low during the different growing seasons in hybrids progienies compared to Diamant variety.

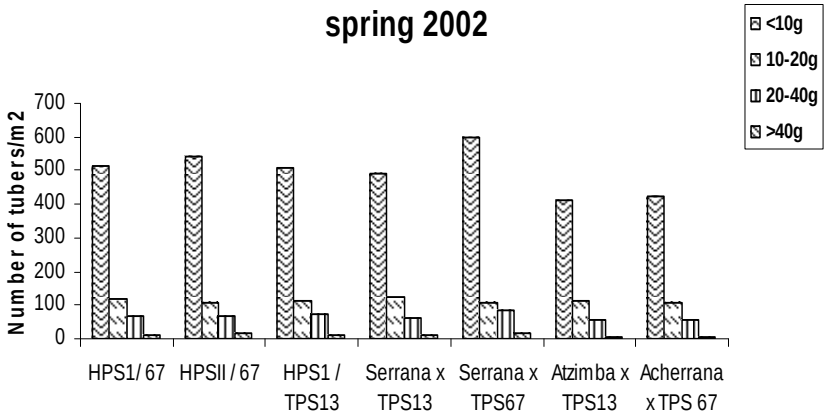
Diamant variety and Atzimba x TPS 13 had the highest values of virus infection (PLRV and Mosaic viruses) while Serrana x TPS 67 and HPS I /67 had the lowest values.

Key words: True potato seed, TPS, seedling tuber, hybrids, potato, production, virus infection.

CONTENTS

LIST OF ABBREVIATIONS/CONVENTIONS

<	less than
>	more than
ºC	Degree Celsius
CIP	International Potato Center
cm	centimeter
cv.	cultivar
g	gram
ha	Hectare
kg	kilogram
m	meter
PVS	Potato Virus S
PVY	Potato Virus Y
PVX	Potato Virus X
PLRV	Potato leafroll Virus.
Seedling tuber	tuber produced from a plant originating from true seed
Seed tuber	tuber produced from a plant originating from a tuber
t	metric ton
TPS	true potato seed



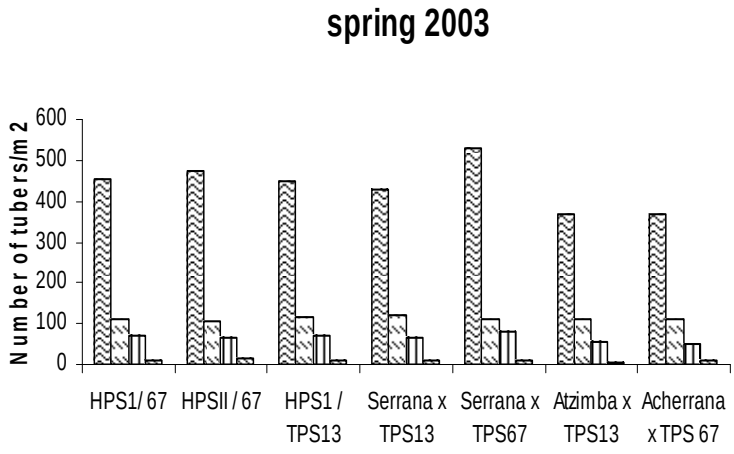
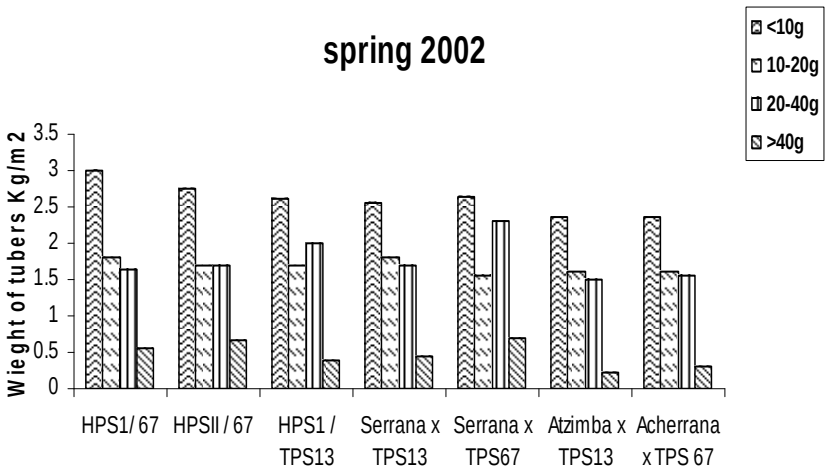


Fig (1): The grading number of tubers / m^2 for 7 TPS hybrids tested in spring of 2002 & 2003 seasons.



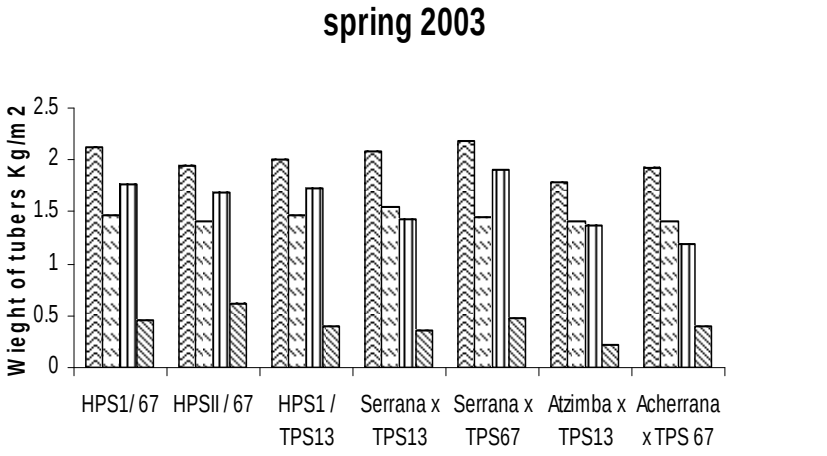


Fig (2): The grading weight of tubers / m^2 of 7 TPS hybrids tested in spring of 2002&2003 seasons

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