Improved productivity of stone fruit trees in Egypt through the propagation of virus-free mother trees

Mazyad H., Shalaby A.A., Rizkalla L.R.

in

Myrta A. (ed.), Di Terlizzi B. (ed.), Savino V. (ed.).
Virus and virus-like diseases of stone fruits, with particular reference to the Mediterranean region

Bari : CIHEAM
Options Méditerranéennes : Série B. Etudes et Recherches; n. 45

2003
pages 153-154

IMPROVED PRODUCTIVITY OF STONE FRUIT TREES IN EGYPT THROUGH THE PROPAGATION OF VIRUS-FREE MOTHER TREES

H. M. Mazyad, A. A. Shalaby, and L. R. Rizkalla
Plant Pathology Research Institute, ARC, 9 El- Gamma St., Giza (Egypt)

Apricot, peach and plum are the most important stone fruit trees in Egypt. They cover around 18% of the area cultivated with fruit trees (about 18,000 Feddens including the peach growing area in the North Sinai) However, their productivity isles with respect to that of the developed countries. Several factors are involved i.e., varieties, soil, crop management, pests and diseases.

Stone fruit trees are affected by a large number of viruses and the major devastating diseases attacking stone fruit trees are *Plum pox virus* (PPV), *Tomato ring spot virus* (ToRSV), *Prune dwarf virus* (PDV), *Apple chlorotic leaf spot virus* (ACLSV) and *Peach rosette mosaic virus* (PeRMV) .

Vegetative propagation from infected mother trees is the most serious means for disease spread particularly in the case of PPV in Egypt. Hence, the main objective of our work is establishing a sanitation program for the release of virus-free propagating material to public and private sector.

The strategies of our work (Fig. 1) involve the selection of the pre-basic tree, which is true-to-type, looking healthy, and free from other pathogens. This tree is submitted to severe test against the known virus and viroid diseases i.e., ToRSV, PDV, ACLSV and PeRMV. The selected trees are tested biologically (indexing), serologically (ELISA) and by molecular biology (PCR and nucleic acid hybridization) methods. In cases of infected material (Positive reaction), heat therapy could be carried out and the tested plants are retested again by the above mentioned methods. However, virus-free tested plants are considered as basic trees for propagation and have to be tested twice a year (spring and autumn). Buds from basic trees are taken for the propagation of mother trees in the greenhouse. These mother trees are tested twice a year also. The healthy mother trees are transferred to the nurseries which fulfil the requirements (isolated, registered, have the technical experience and being under the supervision of the project). Mother trees from the field are used as a source of buds for the nursery and examined once a year; buds from mother trees are used for the production of certified seedlings.

Achievements of the current phase are: i) 120 basic trees of peach, apricot and plum; ii) 794 mother trees in the greenhouse of peach and apricot; iii) 90 mother trees in the field (peach and apricot) in different locations; and iv) 69,178 certified seedlings of apricot (private sector).

Productions expected for the year 2000 equal two thousand mother plants in the greenhouse. Seven hundred mother plants in the field and 2,000,000 certified seedlings. Certified seedlings will cover 20% of our needs in the year 2000 and 100% in 2001.

In conclusion, the project output is of great benefit for the stone fruit growers due to high production and fruit quality that contribute to enlarging the stone fruit market at regional, national and international level.

Fig. 1. Production scheme of certified propagating material for stone fruit trees