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# CERTIFICATION OF FRUIT TREES IN TUNISIA

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**SUMMARY** - Fruit tree industry is very important in Tunisia. In order to improve the sector, the government has set up a strategy for the production of certified material. The activity relies in a recent legislation framework inspired from the EPPO standards. New facilities and equipped laboratories are already available for the certification service. Sanitarily improved material for local cultivars is available for grapevine and citrus, whereas for stone fruits the programme started in 2002.

**Key words:** Tunisia, fruit trees, certification

**RESUME** - L'arboriculture fruitière est très importante en Tunisie. En vue d'améliorer ce secteur, le gouvernement a lancé une stratégie pour la production du matériel certifié. Cette activité est réglementée par une législation mise au point récemment et s'inspirant des normes de l'OEPP. De nouvelles structures et des laboratoires équipés sont déjà disponibles pour le service de certification. Le matériel de multiplication des cultivars locaux, amélioré du point de vue sanitaire, a été obtenu pour la vigne et les agrumes, alors que pour les espèces fruitières à noyau le programme n'a été entamé qu'en 2002.

**Mots-clés:** Tunisie, arbres fruitiers, certification

## INTRODUCTION

Tunisian fruit tree industry is of paramount importance in the economic and social life of the country. It spreads on 40% of arable land and accounts for about one third of the total value of national agricultural production. It moreover provides 79% of the export value of agricultural products. The fruit tree sector covers 643,000 ha (Table 1), 20% of which irrigated and 80% dry farming.

Table 1. Surface, number and production of the main fruit crops in Tunisia

Species	Surface (ha)	Number of trees	Production ( tons )
Almond	386,000	23,487,000	53,000
Peach	35,000	5,253,000	69,000
Apple	28,800	9,380,000	97,000
Fig	22,500	2,713,000	26,000
Pomegranate	14,700	5,290,000	62,000
Apricot	14,000	2,086,000	28,000
Pear	13,000	7,440,000	52,000
Plum	8,000	1,335,000	13,220
Cherry	1,300	256,000	700
Quince	900	285,000	4,500

Source: DGPA. \* average production during 1997-2001

Nevertheless, to reach self-sufficiency for staple commodities and face the challenge of trade globalisation, and in relation to the entry of Tunisia in GATT, the agricultural sector must adjust to changes and enter competition with other producing countries.

Therefore, the Government has set up a series of strategies and programmes to update the agricultural sector, in particular in the field of fruit tree cropping. In this framework, special attention has been devoted to:

- improving orchard productivity (quantity and quality) to satisfy the needs of the domestic market and obtain a surplus to devote to export, especially for green almond, apricot, peach and table grapes;
- rejuvenate and uproot 8,000 ha of low yield old orchards during the 10<sup>th</sup> development plan (2001-2006), at a rate of 1,600 ha/year;
- creating new plantations on a surface of 75,000 hectares during the 10<sup>th</sup> development plan, at a rate of about 15,000 ha/year, and introducing new early and late varieties to stretch the harvesting season;

In the framework of these updating programmes, Tunisia has also set up a strategy for the production of healthy propagating material.

In order to meet the requirements of its planting programme, Tunisia produces every year about 6,500,000 grafted plants, out of which: 1,620,000 vines; 1,625,000 olive trees; 305,000 citrus trees; 900,000 pome fruit trees; 1 530 000 stone fruit trees (Table 2).

Table 2. Production of grafted plants

	91/92	96/97	"01/02	Average*
Stone fruits	2,427,083	1,084,384	1,295,396	1,526,948
Pome fruits	1,283,740	707,680	531,302	899,116
Citrus	213,917	281,025	299,766	305,675
Olive tree	981,640	1,251,320	2,422,460	1,625,851
Grapevine	2,600,000	1,239,000		1,615,998
Miscellaneous	1,142,065	381,550	483,803	612,688
<b>TOTAL</b>	<b>8,648,445</b>	<b>4,944,959</b>	<b>5,032,727</b>	<b>6,438,292</b>

\* average 1991-2001

However, to counter the deficit of trees of some species, propagation material (grafted plants, rootstocks and scions) is imported (Table 3). This imported plant material must belong at least to the certified category.

The control of fruit plants strictly concerns variety trueness-to-type features and the freedom from nematodes, bacterial and fungal diseases.

In the framework of the updating of the nursery sector and in order to meet the requirements of the local markets for virus-free propagating material, a National Programme for the production of certified plants has been set up.

Table 3. Evolution in the import of propagating material

	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01
SFT	89,145	71,380	37,000	49,429	37,700	82,720	267,270	60,610
RS/ SFT	48,350	126,100	199,780	412,660	633,500	733,520	925,100	1,012,000
Vine	0	0	475,100	400,000	8,000	549,000	764,500	13,500
RS/V	235,200	355,365	211,605	309,000	283,300	609,750	680,984	338,800
<b>TOTAL</b>	<b>372,695</b>	<b>552,845</b>	<b>92,3485</b>	<b>1,185,089</b>	<b>962,500</b>	<b>1,974,990</b>	<b>2,637,850</b>	<b>1,424,910</b>

Source: DGPA. SFT: Stone fruit trees and scions. RS/SFT: Rootstock of stone fruit trees. RS/V: Rootstock of vines.

## **CERTIFICATION OF PROPAGATING MATERIAL**

The certification of fruit trees in Tunisia is carried out by the General Direction for the Protection and Quality Control of Agricultural Products (Ministry of Agriculture).

### **Legal framework**

The activity of seeds and plants certification in Tunisia is regulated by:

- Law n° 9942 dated 10<sup>th</sup> May 1999, concerning seeds, plants and plants obtained.
- Decree n° 2000-101 dated 18th January 2000, concerning the classification of seeds and plants, their production and propagation, the general rules concerning their packing and storing, their quality and sanitary control and their marketing.
- Technical regulations concerning production and control norms for various fruit species have just been published in the Official Journal of the Tunisian Republic.

### **Certification Scheme**

The template for certification has been inspired from the schemes of the European Plant Protection Organisation (EPPO) and adjusted to local conditions (Table 4). It will apply to all fruit species.

### **Certification facilities**

In order to accomplish its mission of control and certification of seeds and plants, the Direction for the Protection and Quality Control of Agricultural Products relies on the following facilities:

- a laboratory with a surface of 300 m<sup>2</sup> including:
  - a serological unit ( ELISA , Immuno-Print tests )
  - a molecular unit (Electrophoresis, PCR, Molecular hybridization tests)
  - a sanitation unit (Thermotherapy, Shoot-tip grafting)
- a greenhouse with controlled parameters for bioassays of citrus virus diseases;
- a greenhouse with controlled parameters for bioassays of virus diseases of fruit trees and grapevine;
- a nursery of woody indicators and open field indexing facilities;

## **PRODUCTION OF VIRUS-FREE FRUIT PLANTS IN TUNISIA**

In order to produce certified propagating material, various research projects harmonising public administration, professionals and researchers have been started:

- the National Project for the Selection and Sanitation of the Grapevine (1991)
- the National Project for Citrus Sanitation (1994)
- the National Project for the Selection and Sanitation of Fruit Tree Crops.

The first two projects resulted in a few citrus and vines that are presently in their premultiplication stage, kept by specialised organisations.

As to stone fruit trees, the programme started in 2002 with the clonal selection of the main varieties of stone fruit trees from national foundation blocks and variety collections. This selection, carried out according to agronomic criteria, will be completed by a sanitary selection carried out in the framework of a programme for the production of virus-free primary sources.

Table 4. Scheme for the certification of fruit trees in Tunisia

Steps	Participants	Material categories	Local propagation material	Imported propagation material
Selection/ Import	Owner / INRAT		Clonal and sanitary selection in the orchard	Import of buds of new varieties
Sanitation	Select. / Importer / INRAT		↓	↓
Virus diseases indexing	Select. / Importer / INRAT	Candidate Trees		←
			Thermotherapy , Shoot-tip grafting ( Insect-Proof )	
			↓	
			Virus diseases indexing (serological , molecular and biological tests )	
			↓	
			Virus-free material	Infected material
	Owner/INRAT/DGPCQPA	Primary sources		
			↓	
			Primary sources ( Insect-Proof )	
	Premultip./DGPCQPA	Prebase	↓	
	Nursery man / DGPCQPA	Base	↓	
	DGPCQPA	Certified material	Budwood increasing ( Insect-Proof )	
			↓	
			Multiplication blocks	Varieties behaviour tests
	DGPCQPA		↓	
			Nursery	Registration in the official
			↓	
			Farmer	
Indexing and control of virus diseases			list	

Virus diseases included in this scheme : PPV, PDV, ACLSV, PNRSV, ApMV and PLMVd .