PRA training

Tunisia

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Tunisian ministry of agriculture

General direction of plant protection and quality control of agricultural products

Republic of Tunisia

Tunisia is a North African country with 10.9 million habitants, It is bordered on the North and the East by the Mediterranean sea, Its western border opens on Algeria (965 km) and its South-eastern border on Libya (459 km). Tunisia covers 16.3 610 km², which makes of it the smallest country of the Maghreb.

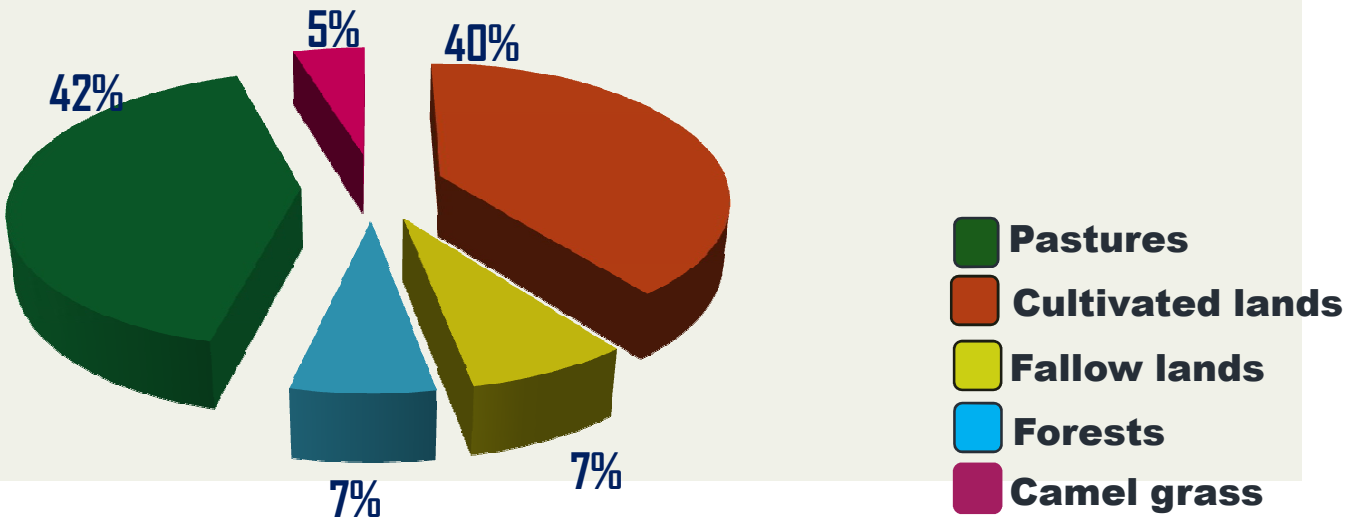
Agriculture in Tunisia

❑ The agricultural sector is a fundamental source of growth to the process of economic development, and plays important role in ensuring the country food security.

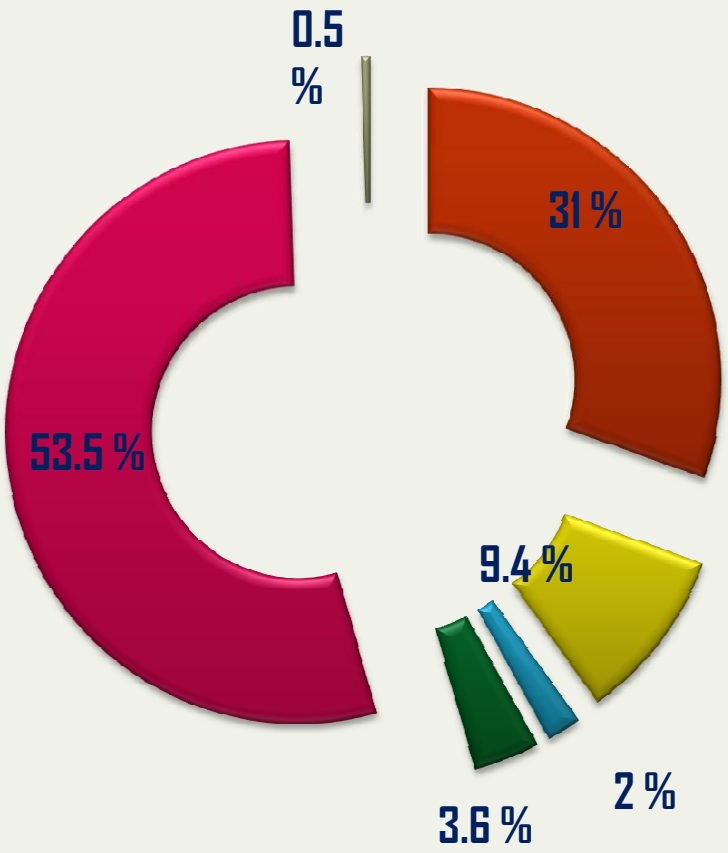
❑ The sector generates around 15% of total Gross Domestic Product (GDP), employs 22% of total labor force and agro-food exports represent around 12% of total exports.

❑ Total agricultural area is about 10,452.920 Ha (62% of Total 16.361.000 Ha), of which cultivated area is about 4,329.040 Ha.

Agricultural areas distribution

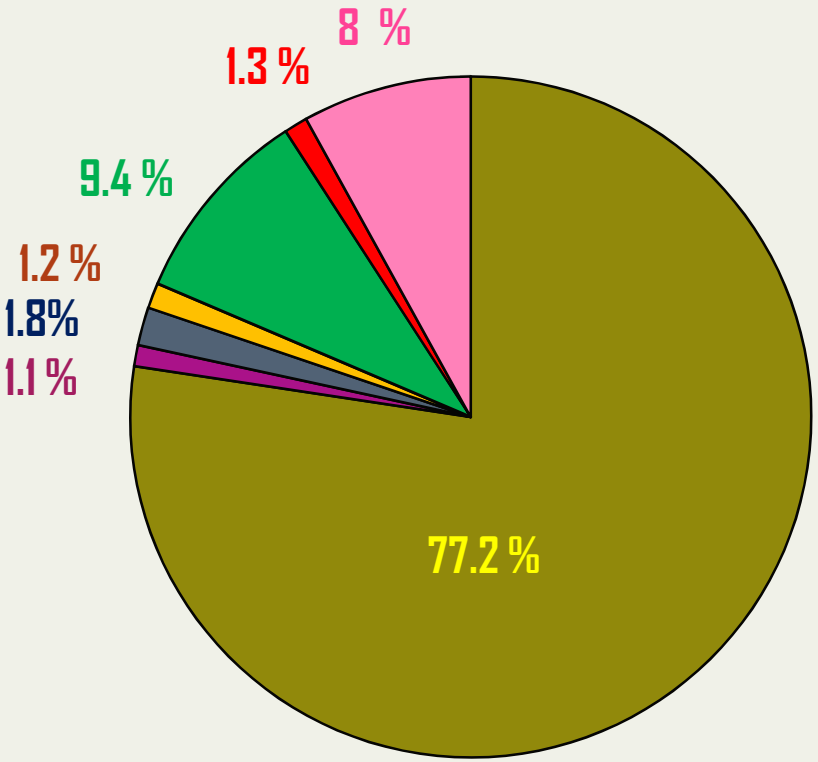


Cultivated areas distribution



- Cereals (1.320110 million Ha)
- Forage crops (416.950 Ha)
- Legumes (82.950 Ha)
- Vegetables (156.630 Ha)
- Fruit trees (2.331.650 million Ha)
- Others (20.780 Ha)

Fruit tree areas distribution



- Olive trees (1.8 million Ha)
- Grapevines (23.400 Ha)
- Date palm (48.700 Ha)
- Citrus (25.000 Ha)
- Stone fruits (218.730 Ha)
- Pomefruits (27.050 Ha)
- Others (188.770 Ha)

Main exported crop commodities

Crop commodity	Value (unit: 1000 DT)
Fruit trees seedlings (mainly stonefruits)	2690.9
Bulbs and tubers	1876
Ornamental plants	3459.8
Olive oil	1500000
Dates (Deglet noor 95%)	370126.2
Citrus (maltese orange 75%)	23478.023
Vegetables (potato, tomato, artichoke, lettuce; pepper etc..)	125665.3
Legumes (beans,pea,Chickpeas)	4518.5
Cucurbits (mainly melon)	10984
Fresh fruits (Apricot, peach, strawberry, fig, apple)	88662.115

Main imported crop commodities

Crop commodity	Value (unit: 1000 DT)
Seedlings (mainly grapevines, plum, peach)	15546.1
Ornamentals (plants, tubers, bulbs)	7540.9
Fresh vegetables	6109.1
Vegetable seeds	17065
Potato tubers	31126,5
Cereals (wheat, maise, rice,barely..etc)	1492392
Legumes (for sowing)	9239,8
Banana	16310,9
Other fresh fruits	3691,0

Government bodies and provision of Plant health

Crop production

- General direction of plant protection and quality control of agricultural products (DGPCQPA)
- General direction of plant production (DGPA)
- Regional departments for Agricultural Development (CRDAs)
- The Interprofessional grouping of vegetables (GIL).
- The Interprofessional grouping vegetables (GIF)
- Cereals office (OC).
- Oil national office (ONH).
- Office of state lands (OTD)
- The Tunisian Union of Agriculture and Fisheries (UTAP)

Import and export trade of plants and plant parts.

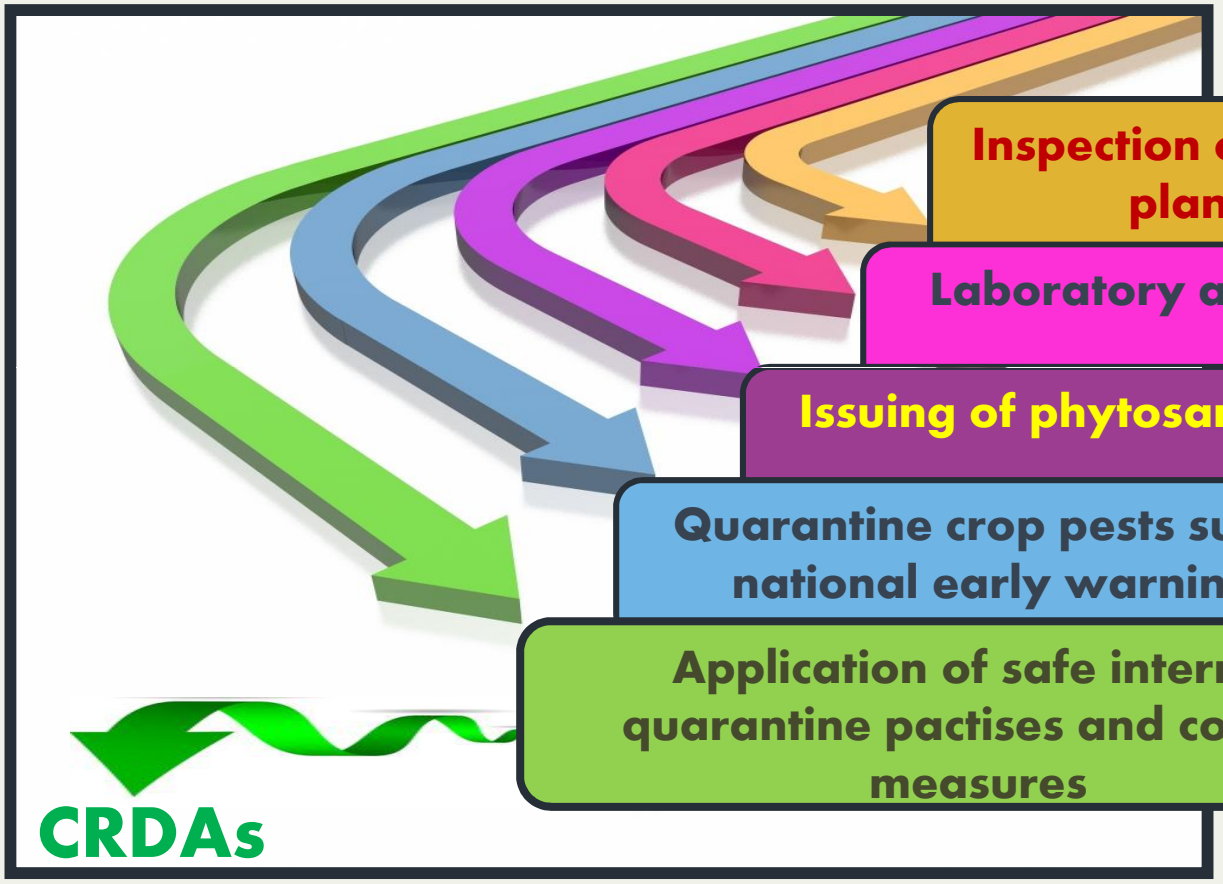
- DGPCQPA- Sub direction of phytosanitary control (Quarantine services).
- Ministry of commerce (MOC) .
- Ministry of industry (MOI)

Natural Environment

- Ministry of agriculture (MOA)
- Ministry of environment (MOE).

Quarantine services against crop pests

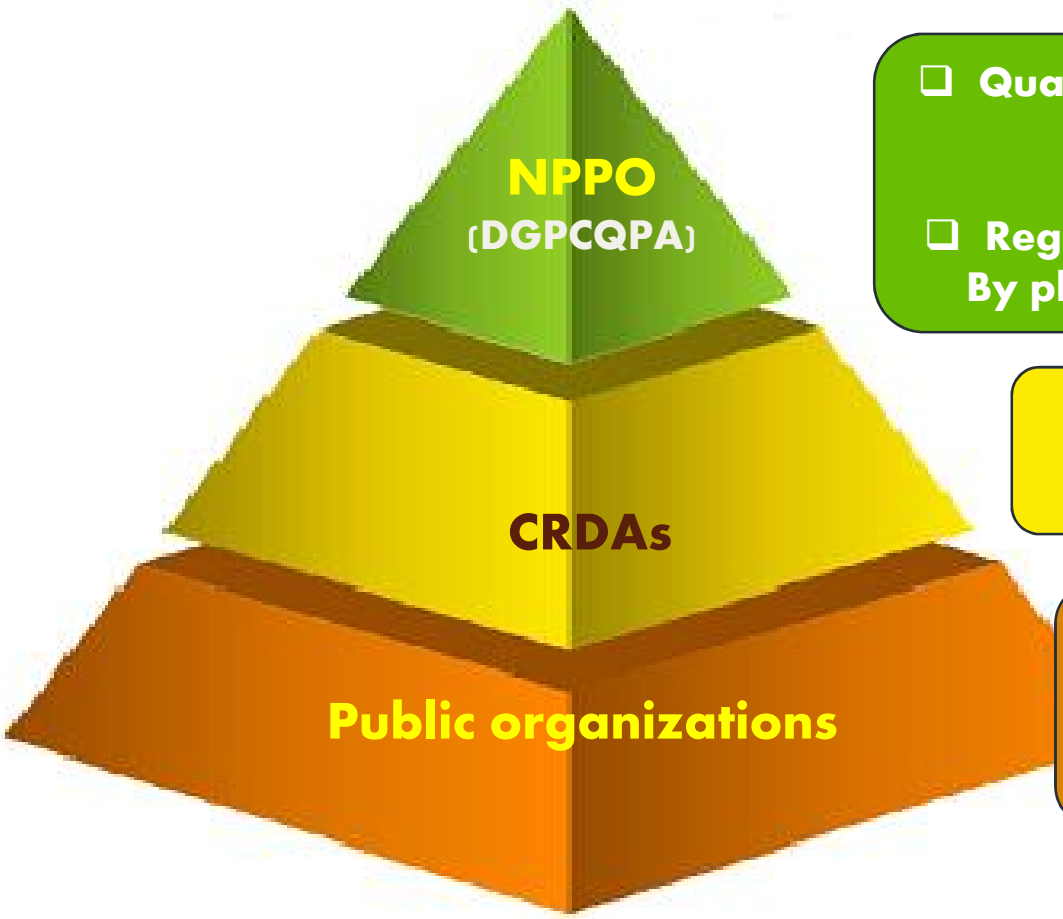
NPPO (General direction of protection and quality control of agricultural products-Quarantine services)



- **Inspection of exported and imported plants and plants parts**
- **Laboratory analysis Investigations**
- **Issuing of phytosanitary certificates**
- **Quarantine crop pests surveillance, for national early warning purposes.**
- **Application of safe internal quarantine pactises and control measures**

Measures on field always done in coordination with the Provincial Departments for Agricultural Development.

Monitoring and surveillance capacity of crop pests in current production



- Quarantine pests : By quarantine services.
- Regulated non quarantine pests: By plant protection department

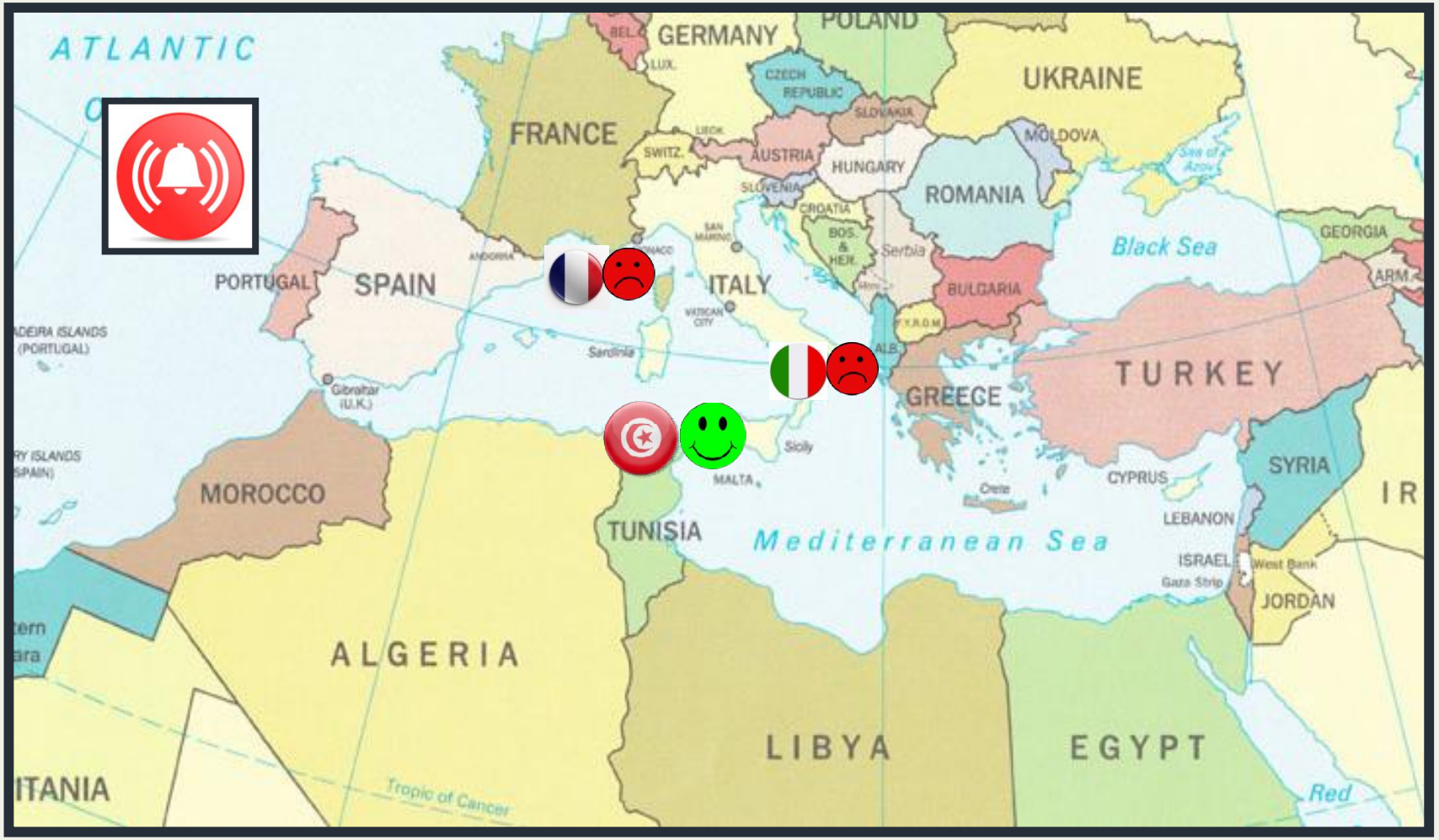
Provincial Departments for Agricultural Development

Technical centers , Interprofessional groups , Research institutions & stakeholders

Emergency situation (Equipments, Financial support)

Information relating to Xylella fastidiosa

Xylella fastidiosa is absent Tunisia



- ❑ Italy – Oct. 2013
- ❑ Corsica - July 2015

Capacities of Quarantine inspections

- Plant quarantine services is operational in 27 official entry points.

12 land borders

8 airports

7 seaports

- Entry points are equipped with personnel and requirements needed for activities performance,

- All phytosanitary officers are practically trained in visual inspection, sampling methods, preservation and transportation of samples for analysis and record keeping associated with samples. and well informed about phytosanitary measures application

Capacities of Quarantine inspections Concerning *x. Fastidiosa*

- Samples are sent to quarantine bacteriology Unit for analysis *(X.fastidiosa).*

- Laboratory is provided with
  - All materials (Kits , equipments, chemical buffers etc….) required to perform the analysis to detect the **bacteria** (serological - ELISA, or molecular – PCR)

- working staff is trained in making analysis, handling samples and recognition of pests and their symptoms, and well informed about needed phytosanitary measures application for each case.

Field inspection for *xylella fastidiosa*

Done by NPPO quarantine services in coordination with the Provincial Departments for Agricultural Development teams (24 CRDAs)

Revision of Minister of agr. decision (List of plant and plant materials)

Feild inspection (visits to high priority areas (host plants), or suitable climate for vector development)

Minister official release No.166 (strict inspection)

Sampling (symptoms similar to Xf)

Technical brochure *X. fastidiosa*

Educational & technical training days *X.Fastidiosa*

Main crops at risk to *X. fastidiosa*.

Crop	Cultivated area (Ha)	Exported quantity	Value (Unit 1000 TD)
Olive (2015)	1.8 million	286.000 ton	1500 000
Citrus	25.000	21215.2 Ton	23478.023
Grapevines	23.400	5527	9464
Stone fruits	218.730	10596.915	10596.915
Forests	692220	oak, sycamore and oleander.	

Hosts of *X. fastidiosa* may be imported

Host	Country of origin	Volume	Frequency
Ornamentals (plants)	Netherland	5597995	All over the year
Seedlings	(Grapevines and stone fruits - Italy, France) (Olive : spain)	1441.9	

Existing preventive measure against *Xylella fastidousa*

- Planting of healthy nursery plants where phytosanitary status and origin certificates are provided

- Monitoring of vectors presence and its control.

- Removal of wild weeds and alternative hosts for vector or bacteria.
- Balanced fertilization, irrigation and pruning, sanitation and removal of residues.
- Soil tillage and removal of previos crop residues and alternative host and wild weeds.
- Control of other fungal or bacterial diseases that may weaken the tree and cause its decline.

Information relating to Fruit Fly (Bactrocera zonata)

Bactrocera zonata is absent Tunisia

Capacities of Quarantine inspections Concerning *B.zonata.*

- Plant quarantine services is operational in 27 official entry points

12 land borders

8 airports

7 seaports

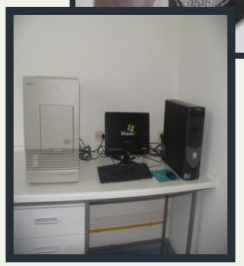
- These entry points are equipped with personnel and requirements needed for activities performance,

- All phytosanitary officers are practically trained in visual inspection, sampling methods, preservation and transportation of samples for identification and record keeping associated with samples. and well informed about phytosanitary measures application

Capacities of Quarantine inspections Concerning *B.zonata.*

- Samples are sent to quarantine entomology unit for further investigations *(B.zonata)*

- Laboratory is provided with facilities for insect binocular microscopic identification and **fruit flies** key pictorial identification manuals needed .



- Staff is well trained in handling samples and recognition of pests and their symptoms, morphological identification and well informed about needed phytosanitary measures application for each case.

Quarantine services - Field inspection for *B. zonata*

- NPPO (Quarantine services + plant protec. services: according to pest categ.) : Detection and Monitoring surveys of the fruit flies population (fruiting and ripening) period to determine the presence of the different species and evaluate their populations characteristics . (monitoring, preventing attack, reducing numbers and control).
- Posters

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- CRDAs : In coordination with the Provincial Departments for Agricultural Development teams (24 CRDA) .

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- Phytosanitary inspectors and technician : trained in survey, monitoring and IPM preventive and curative measures against fruit flies.

Main crops at risk to *B.zonata*

Crop	Cultivated area (Ha)	Exported quantity (Ton)	Value (Unit 1000 TD)
(Main Host) Peach	14960	6426.5	10596.915
(Minor hosts) 1.Apricot	6600		
2. Fig	17590	160 (June-July)	-
3. Citrus	25.000	21215.2	23478.023

Hosts of *B.zonata* may be imported

Host	Country of origin	Volume (Ton)	Frequency
Peach, mango	Producing countries free from Bacterocera spp.	Not significant quantities	Not so common

Existing preventive measure against fruit flies

❑ Mass-trapping starts early at low populations of c.capitata and before and during the ripening of fruits (Phail traps,40 trap/ ha, protein hydrolysate + insecticide/ weekely observation)

❑ Collecting and destruction of fallen and damaged fruits.
❑ Picking up Ripe Fruit as it ripen before being infested.
❑ Suitable disposal of infested fruits and crop to prevent outbreaks of fly (in plastic bags 6 inches under ground to kill larva).
❑ Removal of unwanted fruit fly host plants and trees to prevent the build-up of fruit flies population..
❑ Balanced irrigation & fertilization, pruning , soil tillage (30 cm).

❑ **Chemical control**.
✓ **Preventive sprays**: at ripening time (each 8-12 days) using homologied registered insecticides
✓ **Curative sprays**: Ground sprays with spinosad when threshold reached, or by plane aerial sprays.


Thank
You!