



People's Democratic Republic of Algeria

Ministry of Agriculture and Rural Development

MADR, Directorate of Plant Protection and Technical Controls

International Symposium
on management of *Tuta absoluta*
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IPM Strategy: A case of *Tuta absoluta* in Algeria

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INTRODUCTION

Algeria has undertaken since 2009 a policy to boost the agricultural economy with the objective of food security.

Activities relating to Plant Protection and Technical Control conducted within the framework of the Renewal Program of Agricultural Economics and Rural initiated by the Ministry (cereals- seeds and plants- date-tomato...)

The algerian phytosanitary politic is defined like aiming to the rational application of the various technical controls especially guided by the protection of the human health and the environment .

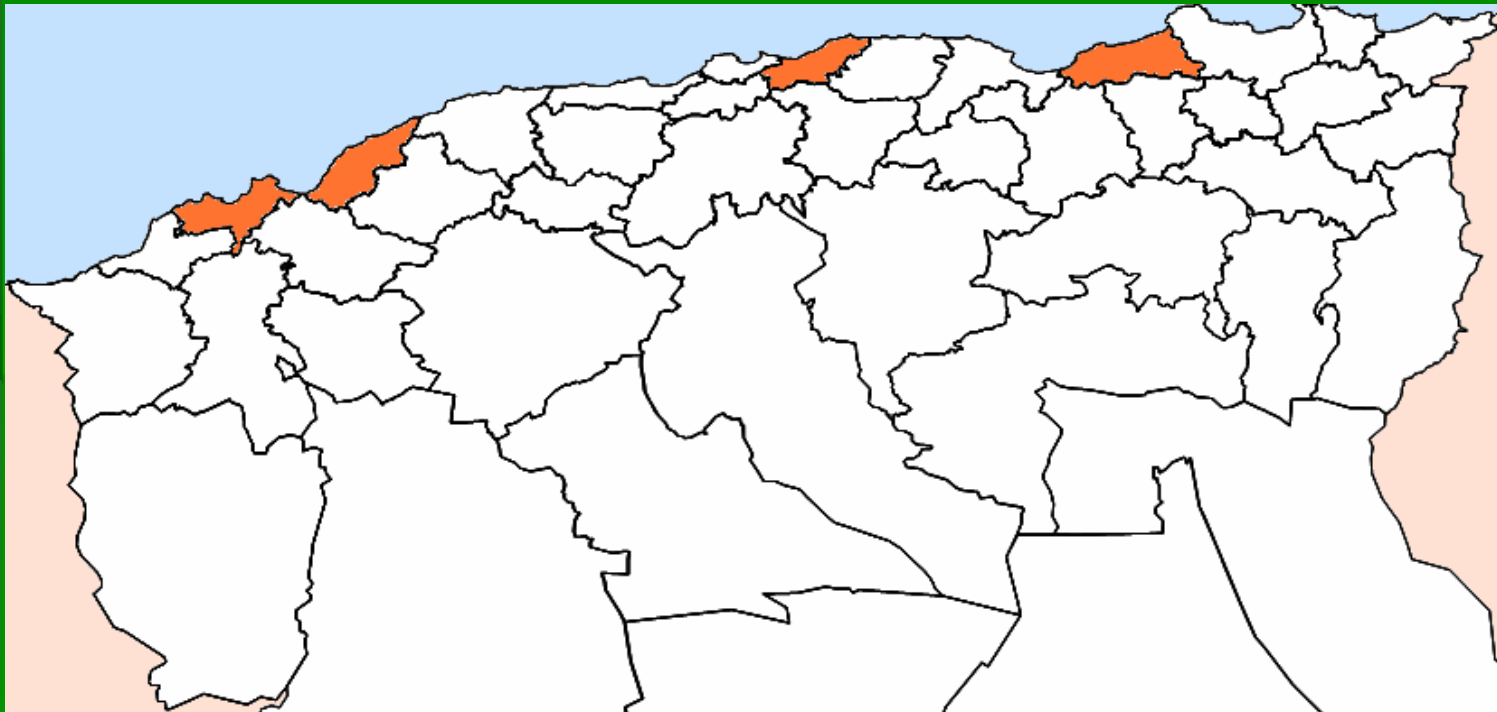
Tomato potential

- Primeur : 3.000 ha S/S
- Field open : 27.000 ha
- Industrial tomato : 13.000 ha



Signs/Distribution

Tuta absoluta is a pest of the tomato known as the leafminer
It's a new quarantine pest reported in Algeria on 2008. The
infestation begun in the west country and expanded.





FIRST MEASURES ?

In the first time we :

- Identify the species
- Signalisation notified to the EPPO

Control strategy is articulated around many axes :

1/ Quarantine Measure :

- Movement of tomato plants from infested area toward free area is prohibited
- Incineration of the infested plants



2/ Prophylactic measures

2.1 - use of healthy plants

Implementation of phytosanitary control of plants by the phytosanitary Inspections of Departments with the contribution of the National Plant protection Institute:

- nurseries: systematic elimination of infested plants,**
- Plants commercialization : using non controlled plants from infested areas is prohibited,**
- planting: sensibilization of the farmers to use of healthy plants and to refuse suspected plants.**



2.2 - maintenance cultural

The farmers must take weeding inside and to the surroundings of the greenhouses in order to eliminate the natural hosts plants of the miner.

They must also maintain the culture clean, suppressing infested parts of the plant and conducting their destruction.

2.3 - protection of the greenhouses by the insect-proof

Use the insect-proof to protect greenhouses. It permits to prevent all introduction of pests as : noctuelles, aphids, white moth ,...etc.



3. Curative measures

3.1 - massive trapping

- Using in the greenhouses and open field pheromon traps

3.2 - Chemical control

- using the appropriate pesticides

3.3 - Biological control

- using indigenous and allocthonous species

4/ Scientific Studies

Many studies were conducted by scientific researchers :

- Dynamics populations of *Tuta absoluta*,
- Inventory of the natural enemies
- Effect of its parasitoids
- Inventory of Host Plants



6/ Vulgarisation (extension services):

sensibilisation/Training/ implementation school farmers

Implementation of 3 school farmers on tomato. This approach is conducted in the integrated management of the productions an the pests.

a school was composed by 15 farmers.

The results obtained of this participative approach are very interesting and indicate :

- adhesion of farmers**
- sensitive reduction of use of pesticides**
- massive use of pheromons traps**



Acquisition of Pheromons :

- a. 500.000 (2009-2010)
- b. 600.000 (2010-2011)

Effect by mass trapping:

- ✓ Control of infestations for all types of crops: tomatoes in greenhouses and open fields
- ✓ Important Captures of *Tuta* (sometimes until 500 adults by trap).
- ✓ Harvest saved: very low rate of infestation on the fruits.
- ✓ Reduction in pesticides use .
- ✓ Conservation of the autochthonous useful fauna.



Biological Program

- Implementation of raising units for the production of auxiliaries in the setting of cooperation with the FAO (TCP) of March 2009. Two lâchers has been done by INPV while using two species : *Nesidiocoris tenuis* and *Macrolophus caliginosus*.

- Mentoring program

Intense awareness campaign was conducted by the Plant protection (Regional Stations and Phytosanitary Inspections) toward farmers and extension agents responsible. It resulted in the organization of days of training, production and distribution of TV spots and the use of local radio stations.



CONCLUSION

(Contrainst/Succes/recommandations):

Contrainst :

- require a particular attention in the management of the greenhouses (opening/closing of the doors - irrigation - size and fertilization- Climatic conditions)
- impact of the chemical control (Residues pesticides,...)

Succes :

- Positive Impact and control of Tomato leaf miner using of non pollutants methods protecting health humam and environment
- Significant reduction of the infestations
- Biological balance
- The fruit production didn't lose in quantity and in quality;
- Mastery of rearing and releases of parasitoids
- Mastery of biologic control
- Less expenses
- Training/Phytosanitary education for farmers (school farmers) – Adhesion of farmers



Recommandations :

- The experiences must be strengthened and must be developed and exchange between countries
- The chemical control cannot solve the phytosanitary problem, it must be done of a reasoned manner and enrolled in an integrated protective concept.
- The biologic control is a main piece in this strategy
- Inventory the useful fauna and the success results and exchange their between countries
- Reticence of farmers in the beginning and adhesion in school farmers
- Required of approach participative of the farmers.



Thanks for your attention