



Extended Diagnostic Expert System XDES Task Force

AP2015 Izmir

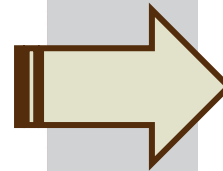
❖ XDES was preceded by DEXT Task Force in 2011

DEXT (The Diagnostic Expert System Translation) was in charge of a cooperation project with the French National Institute of Agronomic Research (INRA) to translate their e-Phytia® tabac website into English.



The screenshot shows the French version of the e-Phytia website. The header includes the 'Ephytia' logo and the INRA logo. Below the header, there are navigation links for 'Cultures > Tabac' and a search bar. Three main menu items are visible: 'Liste des maladies et ravageurs', 'Identifier les maladies', and 'Connaitre et maîtriser les bioagresseurs'. The main content area is titled 'MALADIES ET RAVAGEURS DU TABAC' and features a photograph of a tobacco field. At the bottom, there is a small text block in French.

Cette application reprend pour partie le contenu réactualisé de l'ouvrage de Dominique Blancard, "Maladies du tabac", édité aux éditions Quae. Notons qu'elle constitue aussi le module sur les bioagresseurs de l'application sur la production durable du tabac (ProDuTa) réalisé en collaboration avec l'ANITTA.




The screenshot shows the English version of the e-Phytia website. The header includes the 'Ephytia' logo and the INRA logo. Below the header, there are navigation links for 'Crops > Tobacco' and a search bar. Three main menu items are visible: 'List of tobacco pests and diseases', 'Identify diseases', and 'Pest control and knowledge'. The main content area is titled 'TOBACCO DISEASES' and features a photograph of a tobacco field. At the bottom, there are two text blocks in English.

This application incorporates in part the updated content of Dominique Blancard's book "TOBACCO DISEASES – Observation, Identification & Control", published by Quae Editions. Please note that this module on pests is also part of ProDuTa (the information tool on the sustainable production of tobacco) created in collaboration with ANITTA (the French National Technical Center for Tobacco Professionals).

The English translation was done by Eeva Margnac - CORESTA (Cooperation Center for Scientific Research Relative to Tobacco). Additional information in U.S. on some tobacco diseases has been provided by Mila Mila from North Carolina State University



XDES TF Background

❖ 2013

- the e-Phytia® tobacco website went on-line in English
- a mobile application called Di@gnoplant Tobacco® was created for smartphones and tablets
- it was presented at AP2013 and TWC2014 (+ Poster presentation)



❖ DEXT Task Force completed its work

- DEXT was disbanded
- it was time to extend the scope of the TF to an international level
- Task Force Extended Diagnostic Expert System (XDES) was created

DI@GNOPLANT® TOBACCO

A NEW MOBILE TOOL TO IDENTIFY TOBACCO DISEASES IN THE FIELD

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Di@gnoplant Tobacco is available on smartphones and tablets (Apple and Android) to help diagnose tobacco diseases by using the content of the INRA e-Phytia® website.

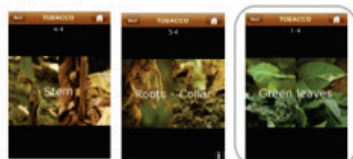
It provides:

- knowledge of the pests and diseases of tobacco;
- identification of diseases with the assistance of an image identification module;
- access to comprehensive information on the symptoms of the identified disease, the biology of the causal agent and protection methods to control the disease.



Diagnosis by image identification

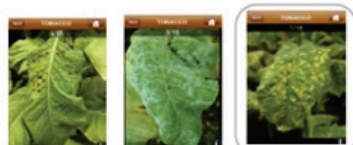
1
Locate
symptoms on
tobacco plant



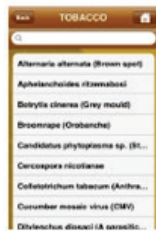
2
Specify
characteristics
of symptoms



3
Select
symptoms
that match

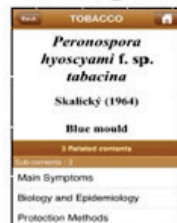


Index to disease information

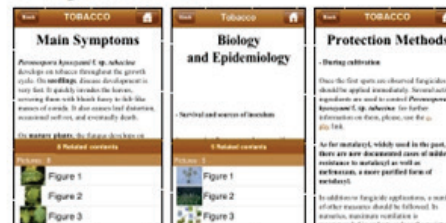


Fact sheets

4 -Diagnosis



5 -Information



NOW,
HAVE A TRY
ON THESE
SYMPTOMS



VIGIPL@NT®:
A future
application for
tobacco?

A complementary
mobile tool for
geolocation,
epidemiologic
monitoring to be
used with
Diagnopl@nt or
separately.





Objectives of XDES

- 1. Collect international data on plant diseases, such as pictures, descriptions, diagnostic, available treatments, etc.**
- 2. Format this information for uploads on the e-phytia/tobacco website and related portable applications.**

Purpose

- **to add new information to already accessible data**
- **to collect additional information**
- **to get other countries or institutions to participate**



Most recent work

❖ Additional information on the U.S. situation was provided by NCSU:

- Blue Mould
- Fusarium Wilt
- Bacterial Wilt of Tobacco
- Tomato Spotted Wilt Virus (TSWV)
- Damping-off (Sore Shin, Target Spot)
- Black Shank, Stem Rot (Athelia Stem Rot, Southern Stem Blight)
- A section on seedlings was added to the “Diagnosis by Image”



On-going work

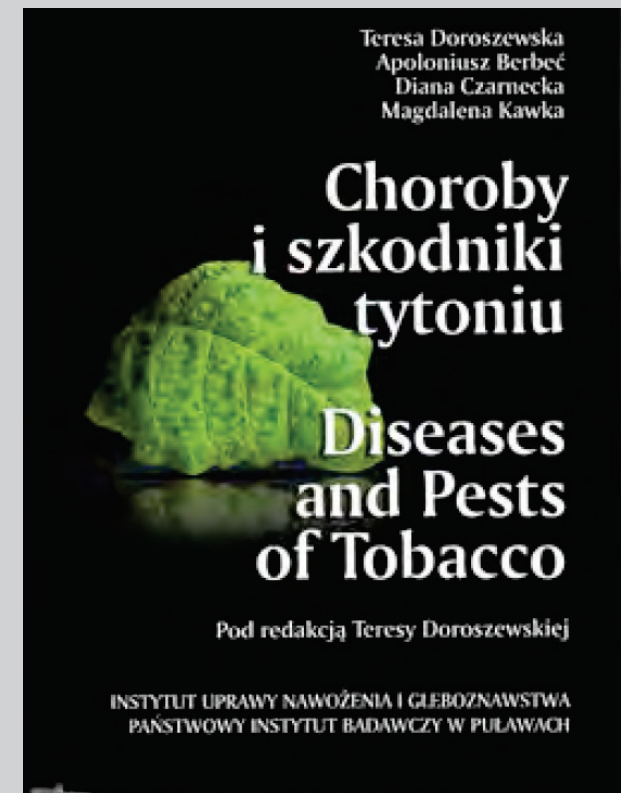
- In May 2015 INRA started to add new photos coming from the Polish **Institute of Soil Science and Plant Cultivation**
- ❖ As soon as the French version is finished the photos will be added to the English version and the legends will be translated into English



On-going work

All the new pictures come from the book by:

- **Teresa Doroszewska**
- **Apoloniusz Berbec**
- **Diana Czarnecka**
- **Magdalena Kawka**





App downloads

- ❖ **Di@gnoplant application has been downloaded 1915 times**
- ❖ **Mostly in the U.S., South America, China, France**



How your work can be visible and help others

You

may have local observations on diseases and pests
(pictures, descriptions, diagnostic, available treatments)
which could complete the already existing fact sheets

Send us your information in English

**All information is submitted to INRA experts
for approval before publication**



Members of the TF

❖ Coordination between contributors and application developers

- Eeva Marignac

❖ Contributors

- Mina Mila for the U.S.A.
- Teresa Doroszewska & al. for Poland



Acknowledgements

Many thanks to:

- **Dominique Blancard (INRA)**
- **Jean-Marc Armand (INRA)**
- **Asimina Mila (NCSU)**
- **Teresa Doroszewska and colleagues**
- **All other collaborators!**



Thank you