



Extended Diagnostic Expert System (XDES) Sub-Group Report

CORESTA Congres 2018

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DI@GNOPLANT® TOBACCO

A MOBILE TOOL TO IDENTIFY AND GEOTAG 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 on the plant by using the content of the INRA e-Phytia® website.

It provides:

- > knowledge on the pests and diseases of tobacco;
- > identification of diseases thanks to an image identification module;
- > access to comprehensive information detailing the symptoms of the identified disease, the biology of the cause and protection methods to control it.



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

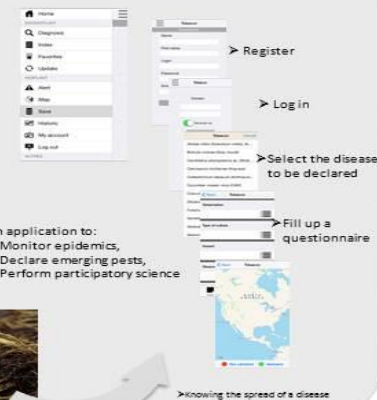


DI@GNOPLANT®
Application

NOW,
HAVE A TRY
ON THESE
SYMPTOMS



VIGIPLANT® application



An application to:

- Monitor epidemics,
- Declare emerging pests,
- Perform participatory science

>Knowing the spread of a disease



Objectives of XDES

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

Purpose

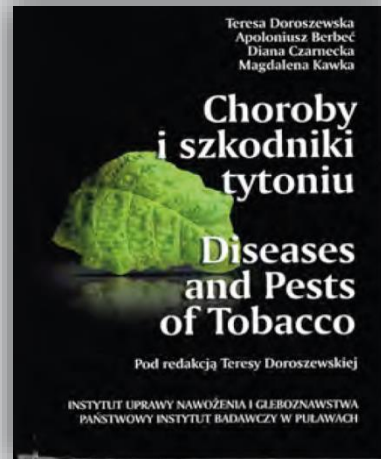
- **to add new information to already accessible data**
- **to get other countries or institutions to participate**

❖ Information from 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”



- ❖ In 2015 the Polish Institute of Soil Science and Plant Cultivation sent new photos
- ❖ 2016 contents were added in herbicide injuries, drought injuries, infectious diseases, nutritional deficiencies and excesses, and pests



Information from Tobacco Research Institute, Chinese Agricultural Academy Science on:

- **Pectobacterium**
- **Tobacco cyst nematode**
- **Sore shin, target spot**
- **A new alternaria species called *Alternaria zhangjiajeense* sp.nov. causing brown spot disease in Hunan province in 2016**



- ❖ **The integration of the Vigiplant system, developed by INRA, into Di@gnoplant**

- ❖ **Translation of Di@gnoplant into Portuguese**
 - **CORESTA started a cooperation project with UNISC (University of Santa Cruz) in 2017**
 - **Professor Andreas Köhler and his team kindly accepted to do the translation from English into Portuguese**





Future work

Information from Tobacco Research Board, Harare, Zimbabwe, will be added soon





How you can participate?

You

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

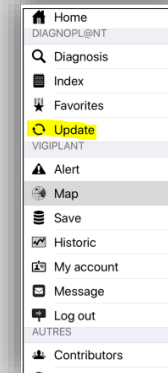
Send us your information in English

**Evaluation of all information is submitted to INRA experts
for approval before publication**



Di@gnoplant Downloads

- ❖ 3200 downloads on Applestore
- ❖ 1520 on Google Play
- ❖ Asia-Pacific, Europe, United States, Africa, Middle East and India, Latin America and the Caribbean
- ❖ Do not forget to update your application!



- ❖ **Coordination between contributors and application developers**
 - **Coord.:** Eeva MARIGNAC; **SC Liaison:** Irving BERGER
- ❖ **Sub-Group Members:**
 - **Colin FISHER**
 - **Yongfeng GUO**
 - **Susan Dimbi**
- ❖ **Contributors:**
 - **Mina MILA for the U.S.A.**
 - **Teresa DOROSZEWSKA & al. for Poland**
 - **Jing WANG for China**
 - **Andreas KÖHLER for Brazil**



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- **Jing Wang (Tob. Res. Inst. Chinese Agric. Acad. Sci.)**

- **and all future collaborators!**