



Extended Diagnostic Expert System (XDES) Sub-Group Report

CORESTA AP2017

SANTA CRUZ DO SUL - BRAZIL

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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.

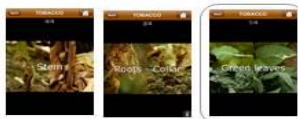
It provides:

- > 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

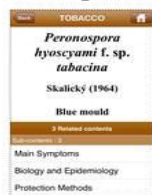


Index to disease information



Fact sheets

4 -Diagnosis



5 -Information

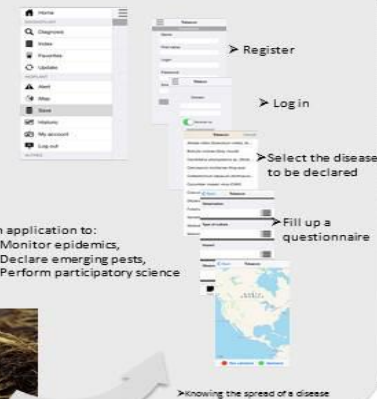


DI@GNOPLANT®
Application

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

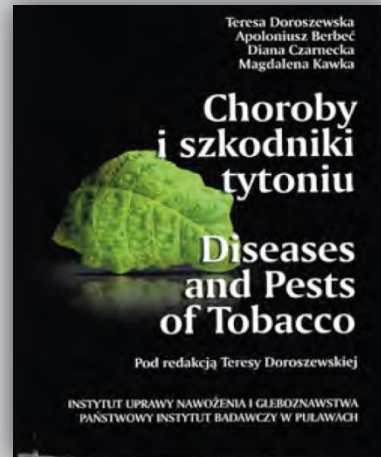
- 1. Collect international data on plant diseases, such as photos, descriptions, diagnostics, available treatments, etc.**
- 2. Format this information for uploads on the e-phytia/tobacco website and related portable applications.**

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





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

What is Vigiplant?

- ❖ A mobile **Alert Tool** for the geolocation and identification of plant diseases in tobacco crops



- ❖ **In practice it means that when grower or field technician sees a diseased plant in the field or seedbed he can:**
 - **Fill a form with a disease name (if known) with an automatic geolocation, take a photo and post it to CORESTA experts for validation. An immediate alert is created.**

CORESTA will need to nominate 4-5 contact persons to whom all questions could be sent. Volunteers welcome!



- ❖ **Additional information on tobacco diseases from China**
 - **Tobacco Research Institute, Chinese Agricultural Academy of Science. Shandong Province, China**



❖ Translation of Di@gnoplant into Portuguese

- CORESTA will start a cooperation project with UNISC (University of Santa Cruz)
- Professor Andreas Köhler kindly accepted to do the translation from English into Portuguese





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

- ❖ **3130 downloads on Applestore**
- ❖ **1325 on Google Play**
- ❖ **Asia-Pacific, Europe, United States, Africa, Middle East and India, Latin America and the Caribbean**



❖ **Coordination between contributors and application developers**

- **Eva MARIGNAC**
- **SC Liaison: Irving BERGER**

❖ **Sub-Group Members:**

- **Colin FISHER**
- **Yongfeng GUO**

❖ **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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- **Teresa Doroszewska (Inst. Plant & Soil Science)**

- **and all future collaborators!**