



# EFSA's apple pest database – harmonised data collection in support of pest risk assessments

**V. Kertész**, G. Gilioli, A. MacLeod, S. Blümel, H. Reizenzein, A. Egartner, R.A. Gottsberger, T. Leichtfried, C. Lethmayer, M. Monguidi, M. Oberhuber, U. Persen, F. Riolo, G. Strauss & J. Wolf



## EU COMMISSION REQUEST

- to collect data and information on the pests of apple fruit present in the EU, by setting up a database covering:
  - Prevalence and distribution in the EU MS
  - Regulatory status in the EU
  - Biology, e.g., lifecycle, host range, plant parts affected and symptoms/damage, means of dispersal/spread
  - Consequences, expressed in terms of loss of yield or quality in affected areas
  - Methods used for surveillance, detection or diagnosis, if applicable
  - Control measures applied in affected areas



## OBJECTIVES

- to assist Member States in gaining access to third countries' markets by a harmonised EU approach in gathering information on plant pests occurring in the EU and providing to the third countries the necessary technical and biological information for pest risk analyses (Article VIII.1 of the IPPC Convention)
- to achieve recognition of the EU entity with the goal of setting quarantine pest lists applicable to the EU and harmonised import conditions for EU products
- the work may have the potential in promoting the establishment of IPPC world standards for plant commodities



## KEY PLAYERS

- EFSA
  - ALPHA
  - DATA
  - PLH Panel experts
- AGES
- DG SANCO
- DG TRADE
- CFIA



## PROTOTYPE DATABASE – 2014/2015

- Structure of knowledge of a PRA transformed into a large set of data elements – excel
- Standard terminology catalogues – no free text
- 2 different data models - geographic occurrence, pest attributes
- Data collected in simple excel data entry sheets
- Data submitted into EFSA Data Collection Framework



## DATA COLLECTION - 2015

Data collection was outsourced – AGES

- Support with terminology catalogues and DB structure
  - Harmonisation according to the requirements of different taxonomic groups
- List of apple pest in EU based on ELS
  - 1950 – 2014 (EU28 + predecessors)
  - 228 pests present, 67 with impact
- Data collection for 12 test pest based on ELS
  - 6 pathogen, 6 insect



## LESSONS LEARNT IN FIRST DATA COLLECTION

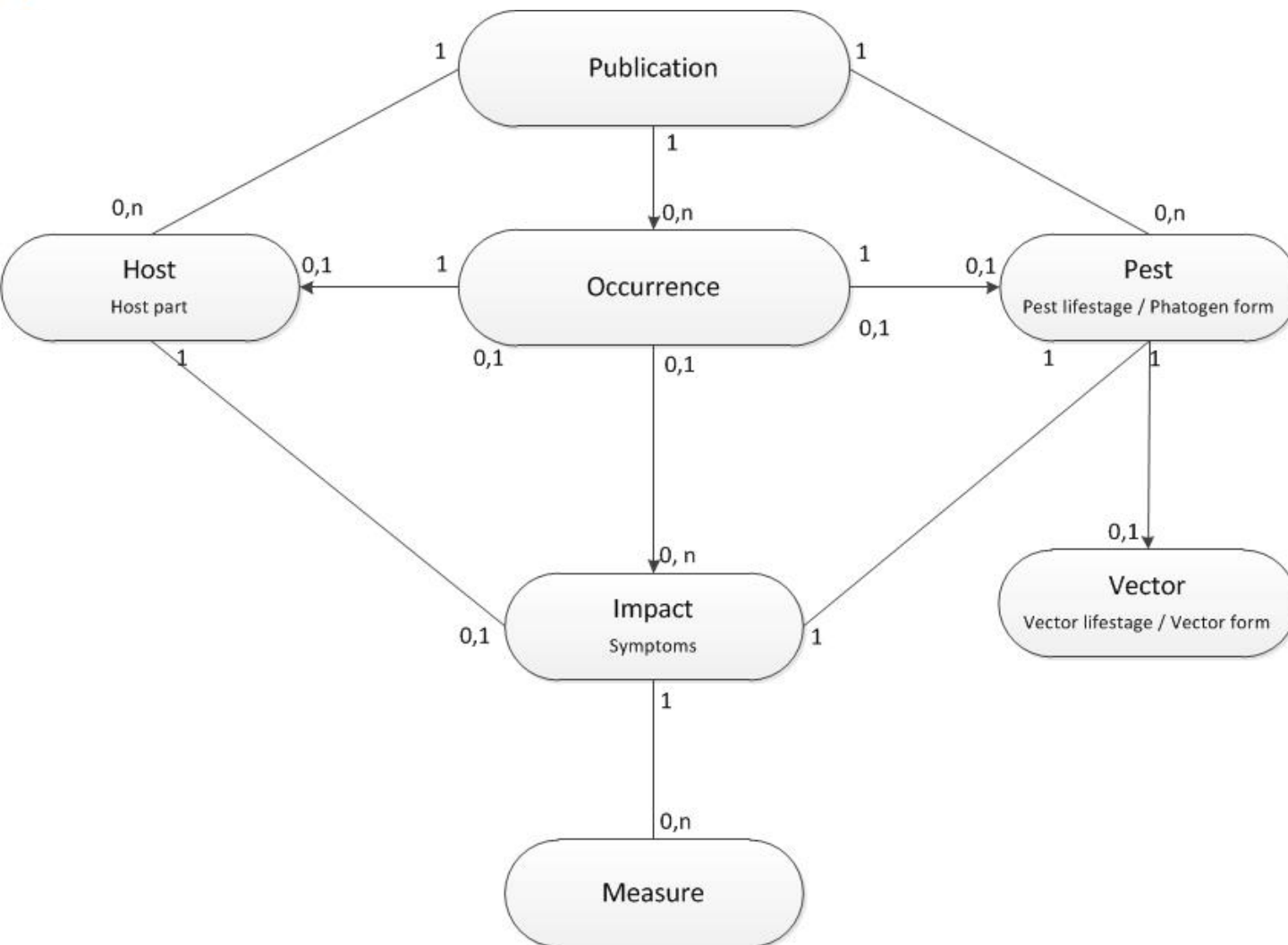
- Working in 2 different data models (geographic occurrence, pest attributes) – overlaps, duplication of efforts
- Collecting data for the entire range of PRA data need – extreme resource intensity
- Create link between variables
- Better define data model variables
- Tools needed to improving usability
  - Data entry tool
  - Reporting



## KEY FEATURES OF NEW DATA MODEL

- 1 data model (simplified version)
- different data sections – pest, host, vector, occurrence, impact and control
- relational data model and clarified organisation of information
- Testing of DistillerSR tool to be used as interface for data collection
- Ratings – qualitative and quantitative (abundance, impact)





## Conceptual data model



# TECHNICAL SPECIFICATIONS OF DATA MODEL

⌘ DistillerSR



User  
interface

ORACLE  
DATABASE



ETL



Data validation  
system

ORACLE  
DATABASE



DWH



Data access  
system

# DISTILLER

1. Which are the relevant information for this specific record?

- Pest / Pest lifestage / Pathogen form
- Host / Host part
- Vector / Vector lifestage / Vector form
- Geographical occurrence
- Impact / Symptoms
- Applied measures

2. EPPO code of the pest

Select an Answer



3. Lifestage of the pest

Select an Answer



4. Form of the pathogen

Select an Answer



5. Regulatory status of the pest in 2000/29/EC

Select an Answer



11. EPPO code of the host

Select an Answer



12. Part of the hostplant (where the pest was found and/or which shows symptoms)

Select an Answer



13. Method of cultivation of the host

Select an Answer



14. Method of storage of the host

Select an Answer



37. Symptoms of pest damage

- abscission
- abscission - fruits
- abscission - leaves
- biting damage
- biting damage - bark
- biting damage - branches
- biting damage - buds
- biting damage - bulbs



## WORKFLOW OF DATA COLLECTION

- Mandate from EC / PLH Panel need
- ELS
- Data input in Distiller platform
- Data moved into EFSA DCF
- Preparation of data report according to requestor needs



## EFSA DB – DOES IT MAKE A DIFFERENCE?

- focus on all pests, including non-quarantine
- data is generated by a systematic ELS + data collection from MS
- interactive nature – involvement of EU/MS in the formulation of data need – shaping the data collection according to the request
- level of resolution (may require lot of maintenance/update work)



## WORK PLAN - 2016

- Re-build data model (simplified version)
- Update existing catalogues and create new ones
- Data input and extraction interface (Distiller SR)
- Implement data collection in EFSA DCF
- Launch procurement call for data collection
- Data collection may start - end 2016 (pending EC mandate)

	A	B	C	D	E	F	G	H
	id	code	section	name	label	description	type	catalog
1	5	A.01	A	refId	Reference Id	Id of the citation as exported by EndNote/Distiller (all the information related to the publication can be retrieved and dynamically added to the data model)	xs:integer(10)	
2	10	B.01	B	pestCode	Pest Code	EPPO code of the pest	catalog	<a href="#">EPPO_PEST</a>
3	15	B.02	B	pestLifestage	Pest Lifestage	Lifestage of the pest	catalog	<a href="#">PEST_FORM</a>
4	20	B.03	B	pathogenForm	Pathogen Form	Form of the pathogen	catalog	<a href="#">PATHOGEN_FORM</a>
5	25	B.04	B	pestRegulatoryStatus	Pest Regulatory Status	Regulatory status of the pest in 2000/29/EC	catalog	<a href="#">LEGAL_CLASS</a>
6	30	B.05	B	pestListingEPPO	Pest Listing EPPO	EPPO listing of the pest	catalog	<a href="#">EPPO_LIST</a>
7	35	B.06	B	pestHostDimension	Pest Host Dimension	Host range	catalog	<a href="#">HOST_DIMENS</a>
8	40	B.07	B	pestOtherHosts	Pest Other Hosts	Hosts other than the commodity	catalog	<a href="#">EPPO_HOST</a>
9	45	B.08	B	pestDevelopmentAttribute	Pest Development Attribute	Key attributes of pest development	catalog	<a href="#">DEV_ATTRIB</a>
10	50	B.09	B	pestDevelopmentValueUnit	Pest Development Value Unit	Unit to express the chosen attribute of development	catalog	<a href="#">UNIT</a>
11	55	B.10	B	pestDevelopmentValue	Pest Development Value	Value of chosen attribute	xs:double	
12	60	C.01	C	hostCode	Host Code	EPPO code of the host	catalog	<a href="#">EPPO_HOST</a>
13	65	C.02	C	hostPart	Host Part	Part of the hostplant (where the pest was found and/or which shows symptoms)	catalog	<a href="#">HOST_PART</a>
14	70	C.03	C	hostProduction	Host Production	Method of cultivation of the host	catalog	<a href="#">PRODUCTION</a>
15	75	C.04	C	hostStorage	Host Storage	Method of storage of the host	catalog	<a href="#">STORAGE</a>
16	80	D.01	D	vectorCode	Vector Code	EPPO code of the vector	catalog	<a href="#">EPPO_PEST</a>
17	85	D.02	D	vectorLifestage	Vector Lifestage	Lifestage of the vector of the pest	catalog	<a href="#">PEST_FORM</a>
18	90	D.03	D	vectorForm	Vector Form	Form of the vector	catalog	<a href="#">PATHOGEN_FORM</a>
19	95	D.04	D	vectorDevelopmentattribute	Vector Development attribute	Key attributes of vector development	catalog	<a href="#">DEV_ATTRIB</a>
20	100	D.05	D	vectorDevelopmentvalueunit	Vector Development value unit	Unit to express the chosen attribute of development	catalog	<a href="#">UNIT</a>
21	105	D.06	D	vectorDevelopmentvalue	Vector Development value	Value of chosen attribute	xs:double	
22	110	D.07	D	vectorTransmission	Vector Transmission	Mode of transmission of the pest by	catalog	<a href="#">TRANSMIT</a>



**We thank CFIA colleagues very much for the regular review and feedback on our work!**

**Thank you for your attention!**

