Media monitoring for emerging plant health risk

Agnès Rortais (EFSA), Jens Linge (JRC), Josep Maria Brunetti (UdL)

EFSA/EPPO Joint Workshop on
"Data collection and information sharing in plant health"
Session 4: Early warning tools in plant health – EFSA 3 April 2014

Consortium

A Rortais
G Stancanelli
S Vos

J Linge
E Mantica
E van der Goot

JM Brunetti

R García

R Gil

A Granollers

O Alomar

A Batlle

S Jiménez

A Laviña

C Reverté

J Riudavets

Joint Research Centre (JRC)

Universitat de Lleida

Overview

- **By EFSA:**
  - Media monitoring and emerging risk identification at EFSA
  - What is an emerging plant health threat?
  - 2009-2011: Customization of MedISys
  - 2012-2013: fine-tuning of MedISys
  - 2014-2016: ontology for (re)emerging plant health threats

- **By the JRC**:
  - MedISys – EMM

- **By UdL**:
  - Sources
  - Ontology skeleton and ontology for plant health threats

Media monitoring and emerging risk identification at EFSA

❑ "… **EFSA** shall undertake action to identify and characterise emerging risks in the field of its mission…"[1]

❑ The EFSA Scientific Committee and Emerging Risks (**SCER**) Unit contributes to this mission by supporting the establishment, development and operation of structures for the screening and analysis of information sources with a view to identifying emerging risks.

❑ Among the IT tools that SCER was requested to develop, is the Medical Information System (**MedISys**) owned by the Joint Research Centre (**JRC**).

1. EC (European Commission), 2002. Regulation (EC) No 178/2002 of the European Parliament and of the Council. Official Journal of the European Communities 1.2.2002 L 31/1.

What is an emerging plant health threat?

❑ EFSA[1] defined an emerging plant health threat as follows:

- A newly identified plant pest for which a significant probability of introduction and/or spread may occur, or
- An unexpected new or increased significant probability of introduction and/or spread of an already known plant pest or
- A new or an increased susceptibility of the host plants to a known plant pest

1. EFSA (2011). Scientific Colloquium 16 on emerging risks in plant health: from plant pest interactions to global change, Parma, 9-10 June 2011. EFSA Scientific Colloquium Summary Report, pp. 62. http://www.efsa.europa.eu/en/search/doc/199e.pdf

2009-2011: Customization

❏ Preliminary assessment of the usefulness of MedISys for the detection of (re)emerging food/feed borne hazards[1, 2]

❏ Customization of MedISys for EFSA's use with the design of an EFSA Tab menu containing sources and categories in the food/feed safety area[3]

1. EFSA, 2009. Development of web monitoring systems for the detection of emerging risks. Technical Report of EFSA. EFSA journal 2009; 7(10):1355. http://www.efsa.europa.eu/en/efsajournal/doc/1355.pdf

2. Rortais A, Belyaeva J, Gemo M, van der Goot E, Linge JP, 2010. MedISys: an early warning system for the detection of (re-)emerging food- and feed-borne hazards. *Food Research International* 43:1553-1556.

3. Linge P and Belyaeva J, 2011. Customization of MedISys for the monitoring of food and feed hazards. Service Level Agreement between the European Food Safety Authority and the DG Joint Research Centre. JRC contract Nr. 31826-2010-07 TPW ISP Ref.: SLA/EFSA-JRC/2010/EMRISK/01. http://www.efsa.europa.eu/en/search/doc/140e.pdf

2012-2013: fine-tuning

❑ Fine-tuning of pre-selected food/feed areas following the recommendations made by EFSA experts assessing data sources for emerging risks identification[1]

❑ Development of specific categories for the plant health areas (e.g. tospovirus)[2]

❑ Development of an ontology in the area of GMO[3]

1. EFSA (European Food Safety Authority), 2011. Data collection for the identification of emerging risks related to food and feed. EFSA Journal 2011: 9(8): EN-185. http://www.efsa.europa.eu/en/search/doc/185e.pdf

2. EFSA (European Food Safety Authority), 2012. Evaluation of the MedISys EFSA Tab menu in the areas of animal and plant health, pesticides and biological hazards. Supporting Publications 2012:EN-331. http://www.efsa.europa.eu/en/search/doc/331e.pdf

3. Prins TW, Top J, Kok EJ and Marvin HJP, 2012. EMM ontology on GMOs. Customization of MedISys for the monitoring of GMOs without a positive safety assessment. RIKILT Report 2012.016. 34p.

2014-2016: ontology for (re)emerging plant health threats

- **Project**: Development and testing of the media monitoring tool MedISys for the monitoring, early identification and reporting of existing and emerging plant health threats

- **Timing and duration:** January 2014 – June 2016 for

- **Collaborators**: JRC, Universitat de Lleida and IRTA (Spain)

- **Objectives:**
  - Collate new and appropriate media information sources
  - Multilingual ontology for the global identification of emerging new plant health threats to be appended to MedISys
  - Develop and test approaches and strategies to monitor re-emerging plant health threats on global and regional scales
  - Analyse and test approaches and strategies for reporting the identified signals to the EFSA Units and experts through the MedISys interface including mapping and georeferencing
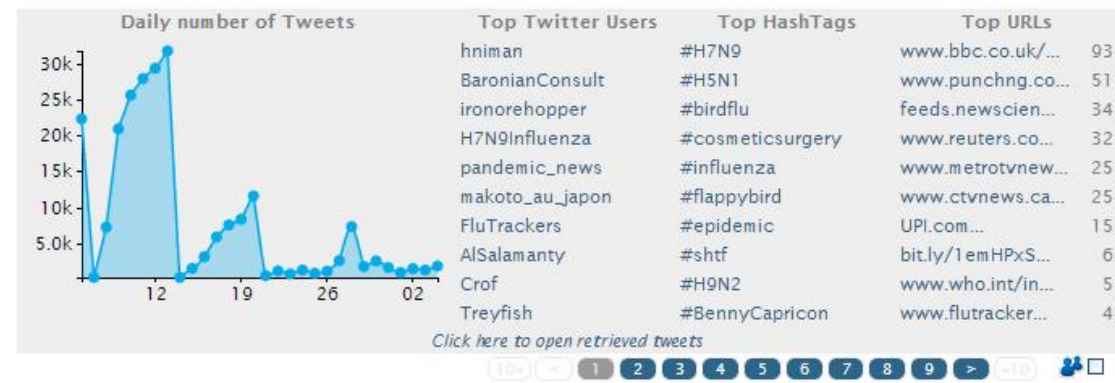
MedISys - EMM from JRC[1]

❑ http://medisys.newsbrief.eu

❑The Medical Information System (**MedISys**) of the Europe Media Monitor (**EMM**) maintained by the Joint Research Centre (**JRC**) is a fully automatic public health surveillance system[1]

❑ MedISys monitors human and animal infectious diseases, chemical, biological, radiological and nuclear (CBRN) threats, and recently food & feed hazards

❑ Articles are displayed by category and filtered by language, news source, and country

1. Linge JP, Steinberger R, Weber TP, Yangarber R, van der Goot E, Al Khudhairy DH, Stilianakis NI, 2009. Internet surveillance systems for early alerting of health threats. Eurosurveillance 14(13). pii: 19162.

MedISys - EMM from JRC[1]

❏ In MedISys, approx. 1,3 million news items are processed per week (data as of March 2014) in 50 languages

❏ Articles are selected based on multilingual filters

❏ Machine translations are available for 10 languages; external links to google translate are provided for all available languages.

❏ Monitoring of Twitter possible (prototype installation for 10 human diseases in collaboration with ECDC)

Example: Avian flu

Twitter monitor shows "most talked about" items

MEDISYS

Latest News About - Annex II A II Directive 2000/29/EC

Top Stories
Event Extraction
Recent Disease Incidents
Alert Statistics
Communicable Diseases
Symptoms
Bioterrorism
Nuclear
Chemical
ECDC
EFSA
Other
Continents
Official Sources
Sources List

Most Active Topics
AdditivesSupplements
AnimalHealth
BiologicalHazards
Contaminants
Feed
FoodContactMaterial
GMO
NutritionAllergens
Pesticides
PlantHealth
Others
Communications
EFSA

Directive2000ec29
EPPOalertlist
EmergencyMeasures
NewPlantPests
NonEUQuarantinePlantPests
PlantPestsOutsideEU
QuarantinePlantPests1
QuarantinePlantPests2
Tospovirus

Articles published more than 4 days ago

Hunger looms in Kasese
observer-ug Sunday, March 23, 2014 10:05:00 PM CET | info [other]

as the western district appears to be losing the fight against the banana bacterial wilt (BBW) disease....

Articles published more than 6 days ago

7,000 banana stems destroyed in Kagera
in2eastafrica Saturday, March 22, 2014 12:13:00 AM CET | info [other]

Over 7,000 banana stems have been destroyed in Kyerwa District in the ongoing operation aimed to ... Wilt (BXW). Kyerwa District Executive Director, Mr George Mkindo said a...

...eeks ago

...lobal warming?

...down by the furious winter winds in ...ne in the Black Mountains, south ...ed managing the wood a few months

...country have welcome reports that the government would set aside funds in ...uld finance tissue culture farming technology, an endeavour...

...pshot - GIEWS Country Brief
...1:17:00 PM CET | info [other]

Tools
Friday, March 28, 2014
12:17:00 AM CET

RSS | KML | MAP

subscribe | manage

current page | all pages

info | definition

Languages
Select your languages

af	am	ar	az	be	bg
bs	ca	cs	da	de	el
en	es	et	fa	fi	fr
ga	ha	he	hi	hr	hu
hy	id	is	it	ja	ka
km	ko	ku	lb	lo	lt
lv	mk	mt	my	nl	no
pap	pl	ps	pt	ro	ru
rw	se	sk	sl	so	sq
sr	sv	sw	ta	tg	th

Example: Diseases defined in directive 2000/29/EC EFSA menu featuring threats to plant health

MEDISYS

Top Stories
Event Extraction
Recent Disease Incidents
Alert Statistics
EU Member States
Europe (non-EU countries only)
Overseas Countries and Territories
Asia
Middle East
North America
Central America/Caribbean
South America
West Africa
East Africa
Central Africa
Southern Africa
Australia/Oceania

Communicable Diseases

· Most Active Topics
· Airborne
  ◦ Avian flu
  ◦ Coxsackie Infection
  ◦ Coronavirus Infection
  ◦ Chickenpox
  ◦ Diphtheria
  ◦ Haemophilus influenzae Infection
  ◦ Influenza
  ◦ Swine Flu
  ◦ Legionellosis

Latest News About - Tospovirus

Articles published more than 1 month(s) ago

Nuevo virus amenaza con acabar cultivo de tomate
HoyDigital-DO Wednesday, February 5, 2014 7:45:00 AM CET | info EN [en] [other]

Aji morrón y tomate industrial afectados por el virus TSWV, que también ataca la papa, la lechuga y el tabaco, entre otros cultivos. fuente externa. Una nueva plaga ha sacado el tomate industrial de la producción en el Norte (Santiago), Noroeste, y Azua, y los productores han tenido que hacer.......

Articles published more than 4 month(s) ago

Discovery of a Unique Novel Clade of Mosquito-Associated Bunyaviruses [Genetic Diversity and Evolution]
jvi Friday, November 1, 2013 7:42:00 PM CET | info [other]

Bunyaviruses are the largest known family of RNA viruses, infecting vertebrates, insects, and plants. Here we isolated three novel bunyaviruses from mosquitoes sampled in Côte d'Ivoire, Ghana, and Uganda. The viruses define a highly diversified monophyletic sister clade to all members of the genus.......

Articles published more than 8 month(s) ago

Scientist warns biosecurity at risk from new trade deals
nzherald Thursday, July 11, 2013 8:00:00 PM CEST | info [other]

A prominent agricultural scientist says New Zealand deserves only a half-mark for its biosecurity efforts - and warns that new free-trade agreements and increased tourism could pose a threat at the border.Former AgResearch manager......

Articles published more than 9 month(s) ago

Псковские таможенники не дали ввезти в Россию фрукты с калифорнийским трипсом
informpskov Thursday, June 27, 2013 3:16:00 PM CEST | info [en] [other]

По результатам проведения карантинного фитосанитарного контроля ввозимой на территорию России подкарантинной продукции специалисты выявили нарушения в МАПП Убылинка. Об этом Псковскому агентству информации сообщили в пресс-службе

Tools
Monday, March 17, 2014 2:56:00 PM CET

RSS | KML | MAP

subscribe | manage

current page | all pages

info | definition

Language Selection

For any category/filter, users can choose:

1. the language of the categorized news items (e.g. fr and de to display only those news items in French and German)
2. the language of the user interface (e.g. it for Italian)

In Top Stories, the user can display the largest clusters of news items for one language only (e.g. en shows all clusters in English)
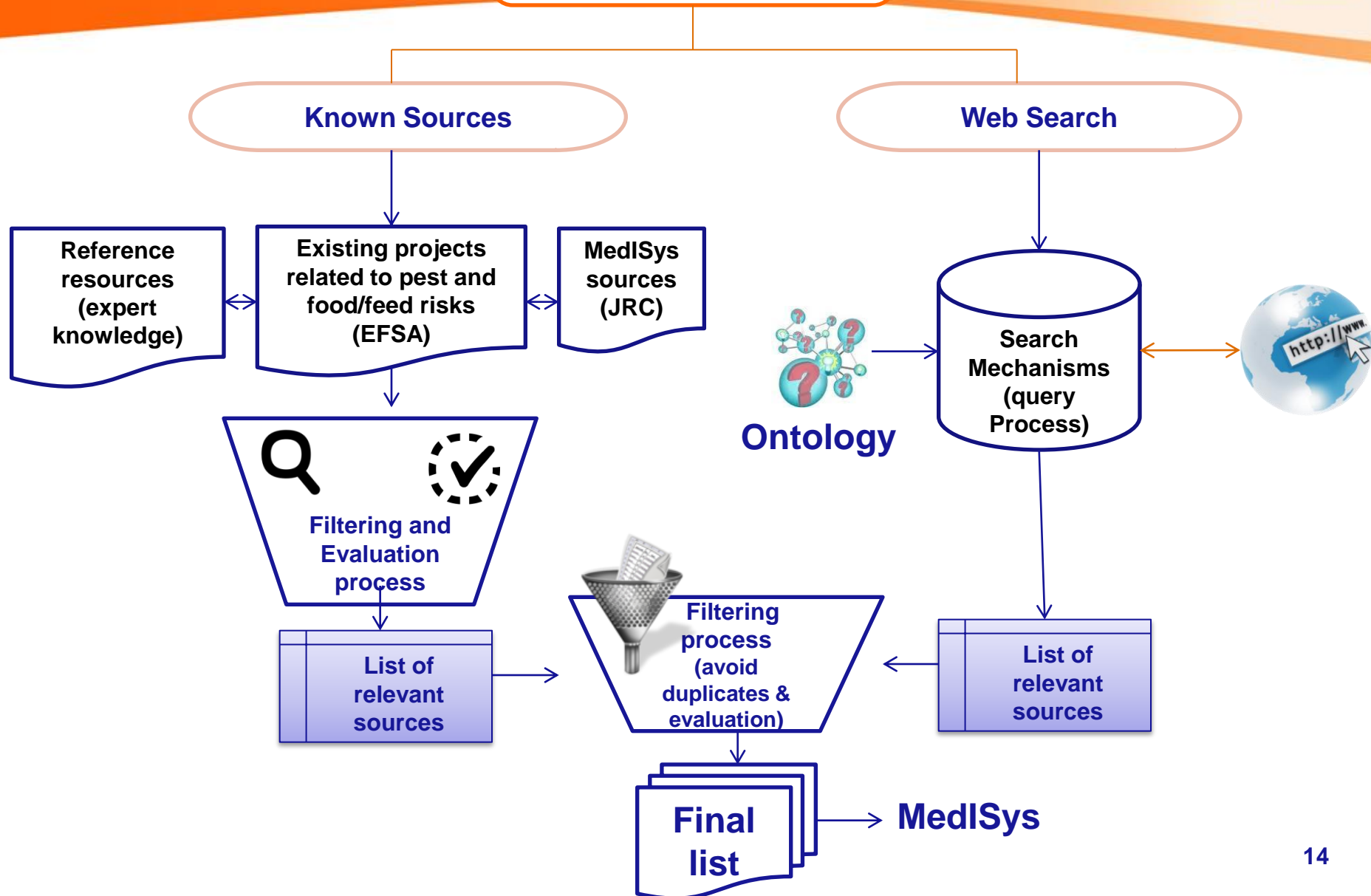
Country Selection

Users can choose:

1. country mentioned in the news item (articles about a country)
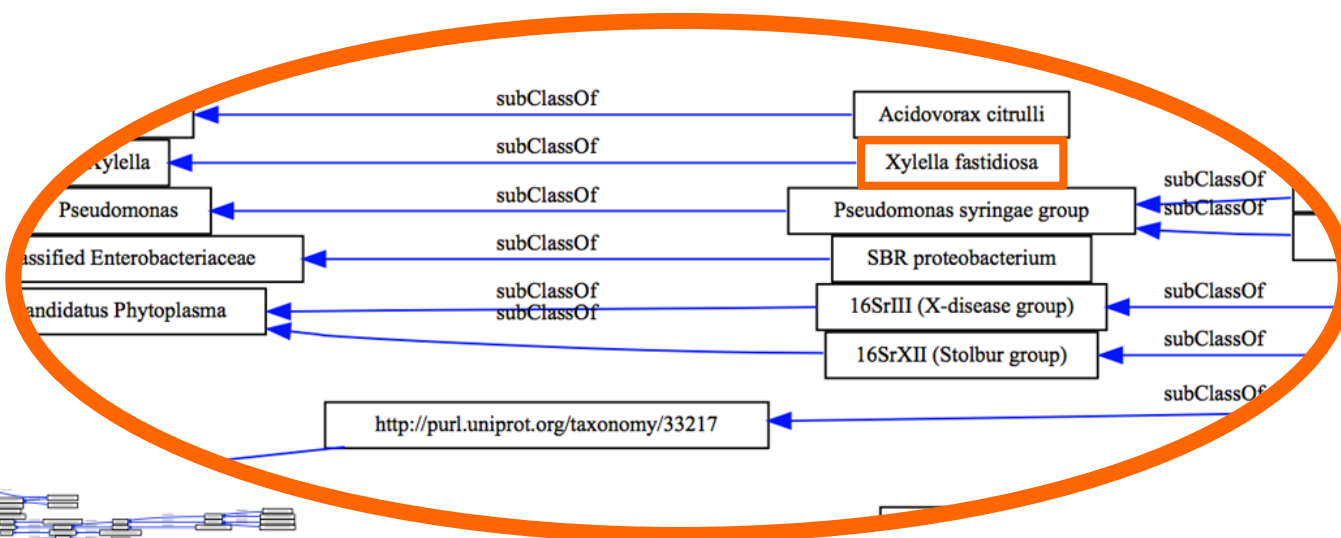2. country in which the news item was published (articles from a country)

Languages

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Sources

Plant Health Threats Sources Inventory

Known Sources

Web Search

Reference resources (expert knowledge)

Existing projects related to pest and food/feed risks (EFSA)

MedISys sources (JRC)

Ontology

Search Mechanisms (query Process)

Filtering and Evaluation process

List of relevant sources

Filtering process (avoid duplicates & evaluation)

List of relevant sources
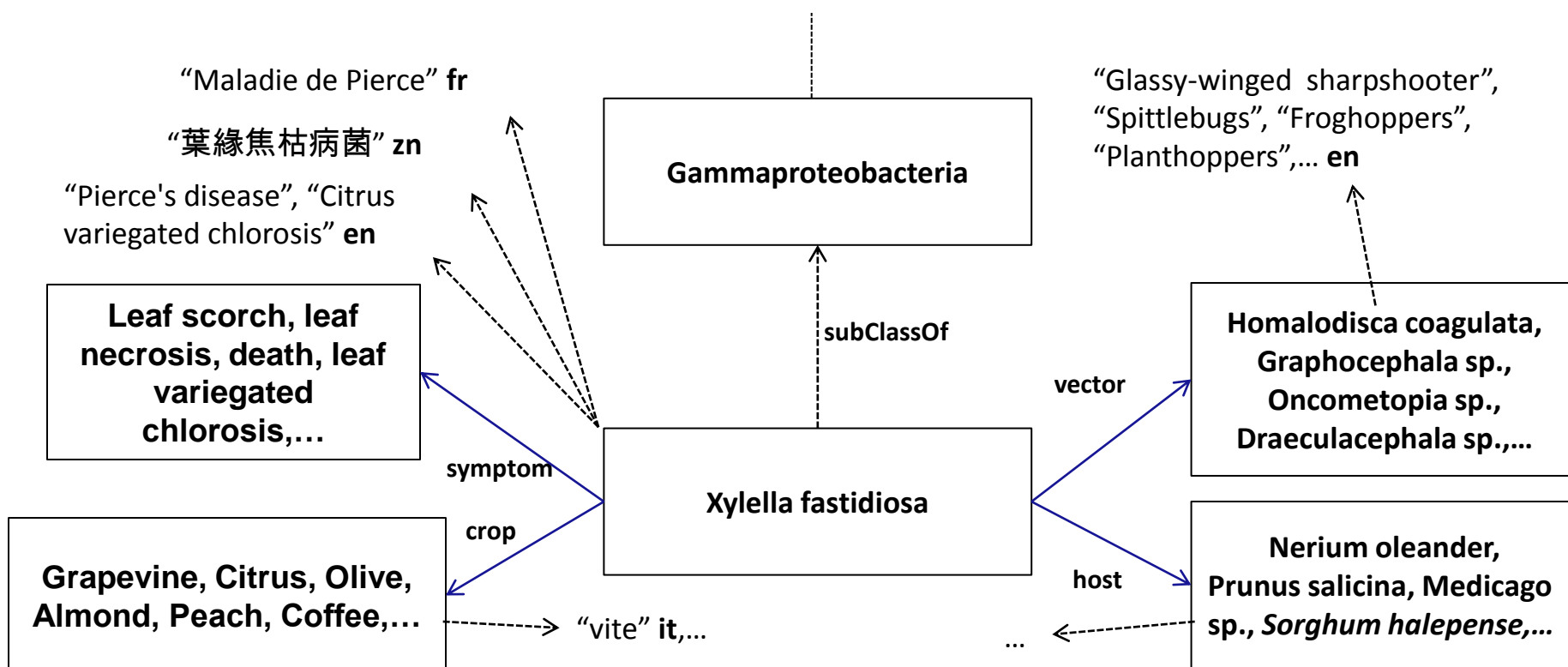
Final list

MedISys

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Ontology Skeleton

- 140 pests/diseases from EPPO Alerts, 2000/29-1-A-1 and EU Emergency Control Measures
- Linked to UniProt Taxonomy:
  - Taxonomical information, scientific/common/other names,…

Plant Health Threats Ontology

- Enrich ontology with affected names in different languages, crops, symptoms, vectors,…

- Extract keywords to generate MedISys or Web search filters,…
  - Example: "leaf scorch" AND ("grapevine" OR "sharpshooter")

THANK YOU FOR YOUR ATTENTION