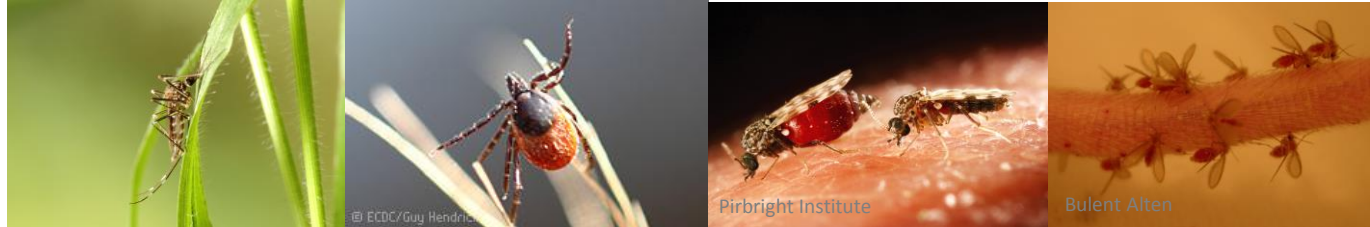


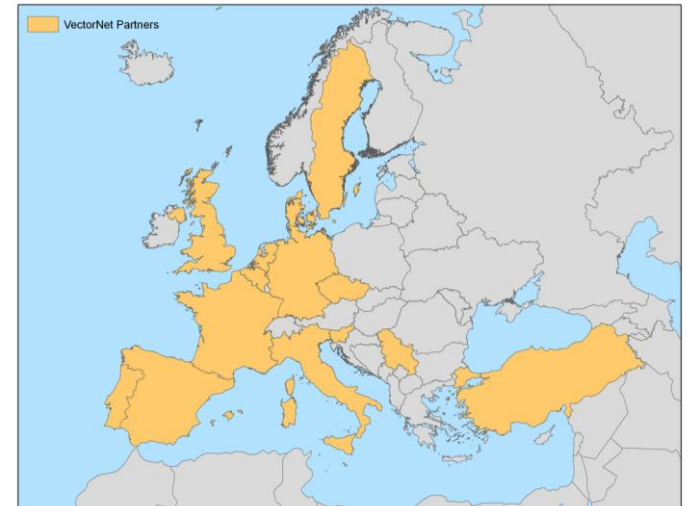
# Vector Net

# VectorNet



# What is VectorNet?

- Network project
  - Inter-institutional project (EFSA-ECDC)
  - Vectors of pathogens affecting human and/or animal health
  - Field work driven by:
    - Current vector maps/knowledge
    - Gaps (knowledge & distribution)
    - ECDC-EFSA requests
  - 21 partners from 14 countries
- Time-frame: 2014 - 2018



# General objectives

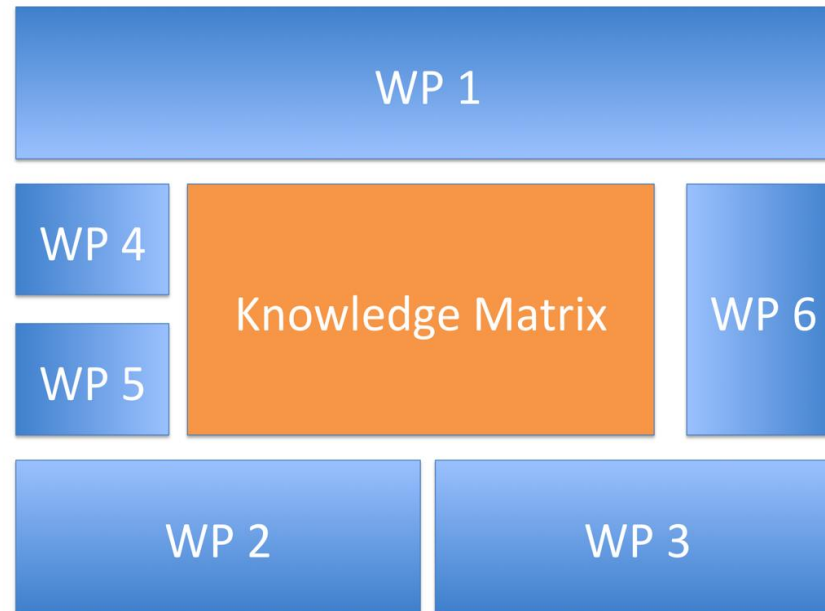
## A collaborative approach to data collection activities on vectors

- To collect information on the geographical distribution of priority vectors;
- To further develop the network of medical entomologists and public health professionals, including veterinary entomologists and veterinarians working in the field of vectors or vector-borne diseases;
- To deliver ad-hoc scientific advice to support ECDC and EFSA;
- To carry out targeted entomological surveillance.

# Expected outcomes

- **Bridge between vector community and PH & AH:**  
It is crucial that within the network, the entomological expertise is directly linked and applied to public and animal health
- **Information sharing between different stakeholders:**  
ECDC/EFSA website
- **Database on vectors from different sources:**  
individual expert, literature, field sampling, **PH surveillance**
- Vector sampling: **capacity building** & encourage **vector surveillance**
- **A synergistic effect and added value to individual databases:**  
coverage of vector species; avoid duplication; strengthening collaboration;

# VectorNet organisation



Task1 – Project coordination

Task2 – Tools development and maintenance

Task3 – Networking and meetings

Task4 – Data collection and quality assessment

Task5 – Ad hoc technical and scientific advice

Task6 – Entomological surveillance and monitoring

6 Tasks divided over 4  
Vectorgroups, a One  
health group and a  
modelling team

# Collection of vector data

- Data is obtained in different ways:
  - regular screening literature
  - actively contacting identified experts (especially in specific regions)
  - via web platform
    - georeferenced data
    - Aggregated data at various administrative units
- Three-monthly updates of the geographic distribution maps :

[http://ecdc.europa.eu/en/healthtopics/vectors/vector-maps/Pages/VBORNET\\_maps.aspx](http://ecdc.europa.eu/en/healthtopics/vectors/vector-maps/Pages/VBORNET_maps.aspx)

# Entomological surveillance and monitoring

- Presence/absence data:
  - collected at a selection of sample sites over a more or less short time period;
  - collected at a limited number of selected sites, over one or more vector seasons, using a range of trapping and detection methods;
- Abundance data:
  - collected at a limited number of sites selected over a predefined geographical range, environment and time frame, according to a standardised method

# Entomological surveillance and monitoring

- Gap-analysis techniques.
  - To guide surveillance
    - Gaps in maps
    - Distribution limits
- Adopt specific sampling strategies adapted to each vector group
  - SURVEILLANCE PROTOCOLS!!
- Integrate priorities of different vector groups
- Focus on capacity building and regional strengthening



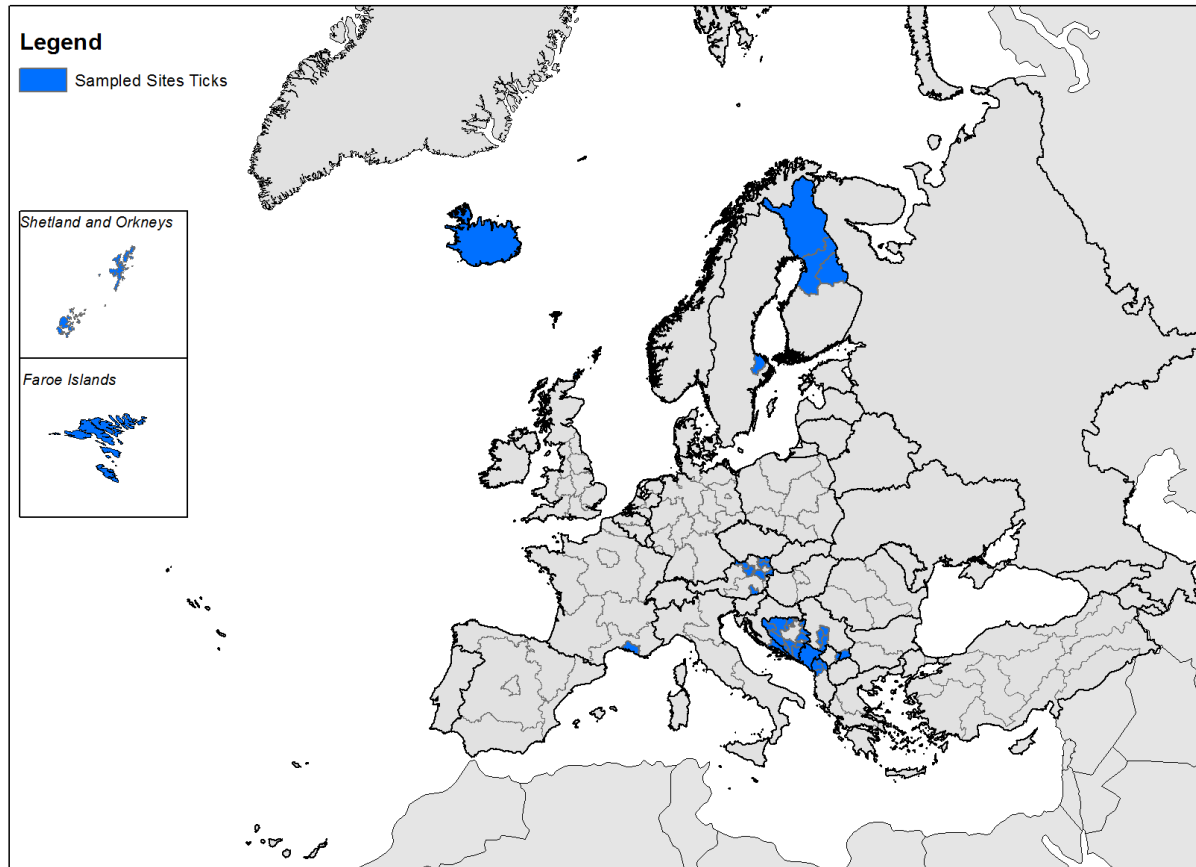
# Entomological surveillance 2015

- 26 different projects
  - Ticks: 8 projects, 10 countries
  - Mosquitoes: 6 projects in 7 countries
  - Culicoides: 9 projects in 9 countries
  - Sandflies: 3 projects in 7 countries
- Training & set up fieldwork by consortium
- Fieldwork done by (or with) local team

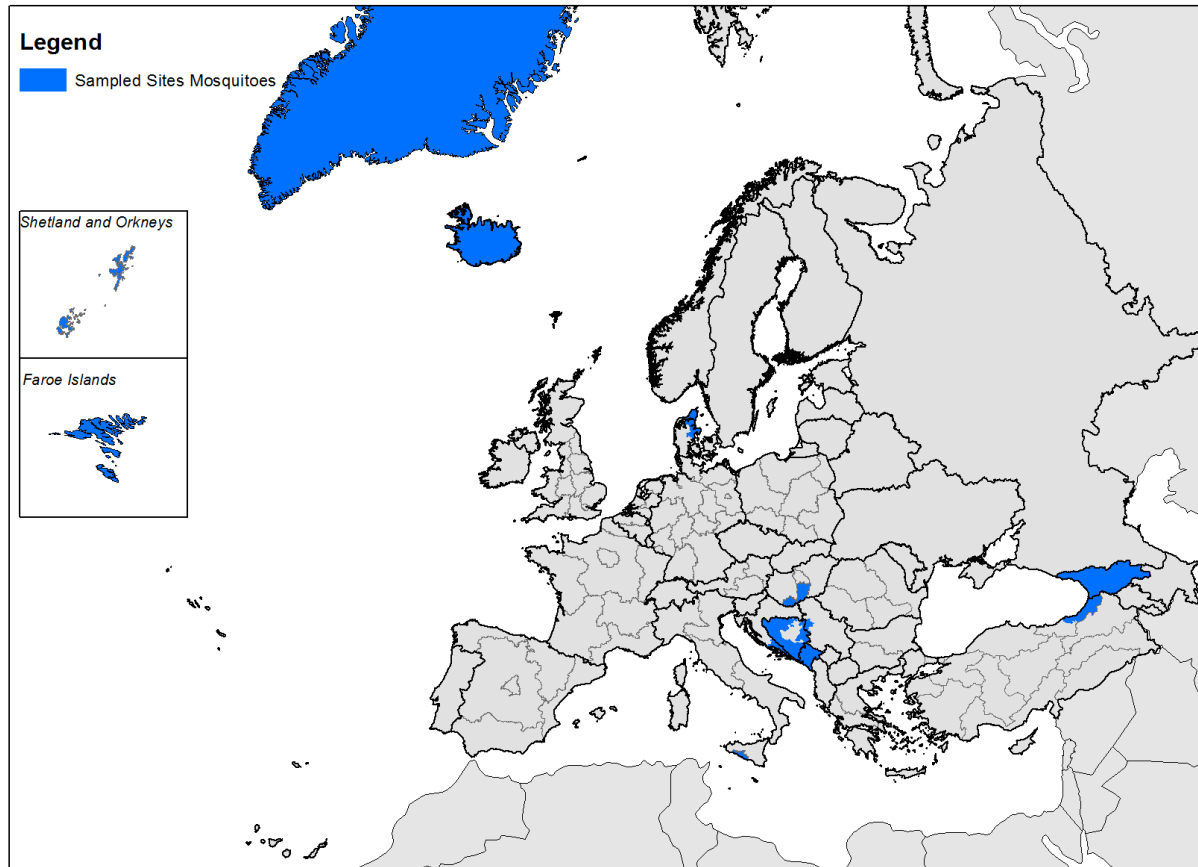
# Entomological surveillance 2015

- Collected material
  - Identified by VectorNet partners
  - Otherwise: quality control
  - Can be stored if needed
- Data should be added to VectorNet maps beginning 2016
- To be continued in 2016, 2017 and 2018
- Use of mobile app (Vecmap) to monitor data collection

# Entomological surveillance 2015- Ticks

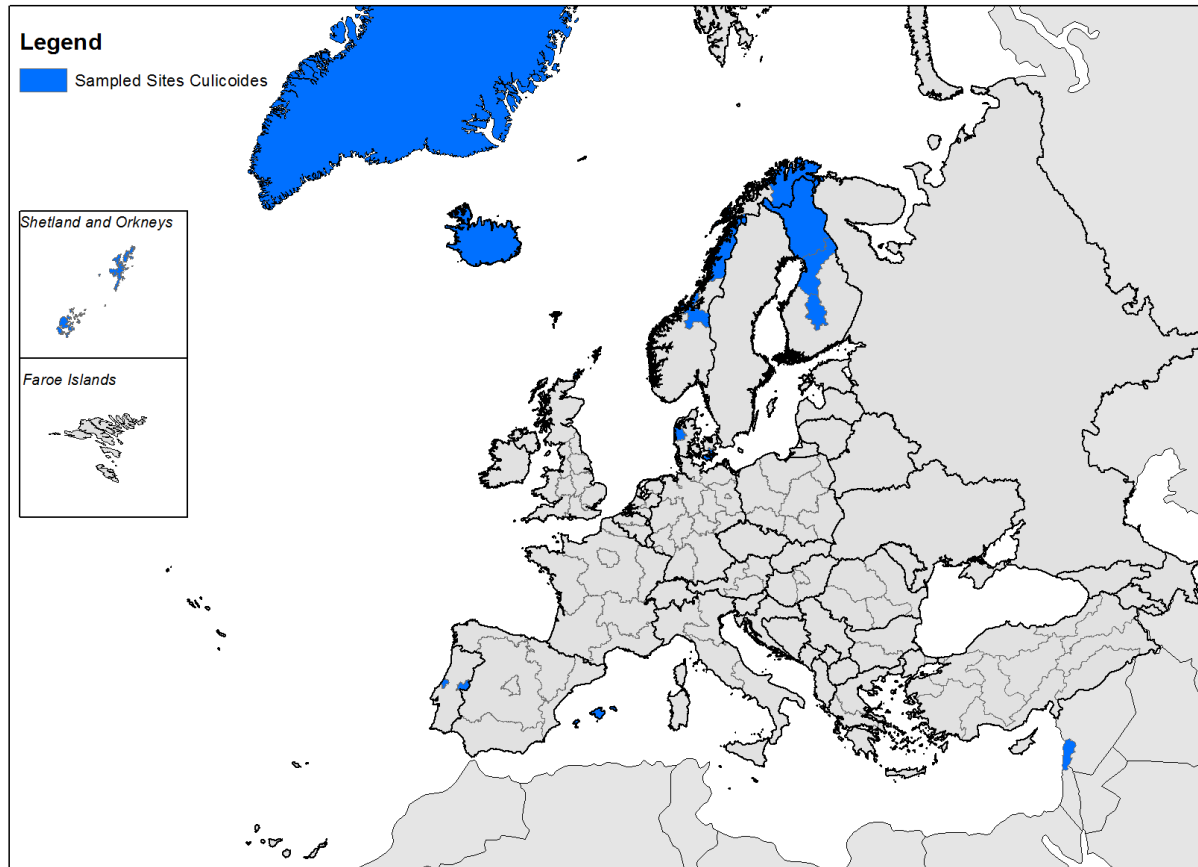


# Entomological surveillance 2015- Mosquitoes



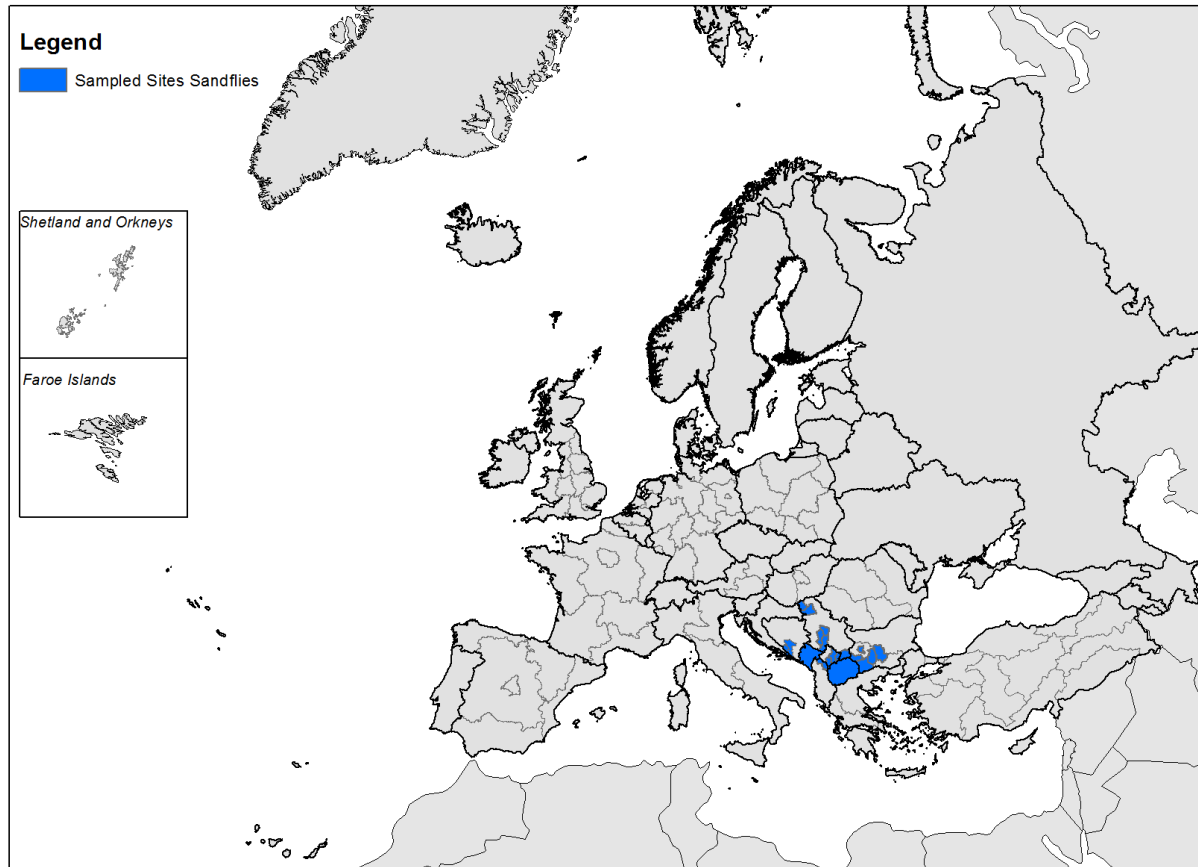
# Entomological surveillance 2015

## Culicoides



# Entomological surveillance 2015

## Sandflies



# VectorNet membership

- *What is the value for you to become a VectorNet network member?*
  - access to the VectorNet raw VBD data and resources
  - possibility to contribute to VBD/PH/AH priority setting in Europe as a member of expert panels (e.g. annual VectorNet meeting)
  - A pdf with all contributors whose data was used to build the current distribution map will be put online along with the updated maps (stating “this map is based on data from: ...)

*Dermacentor reticulatus*

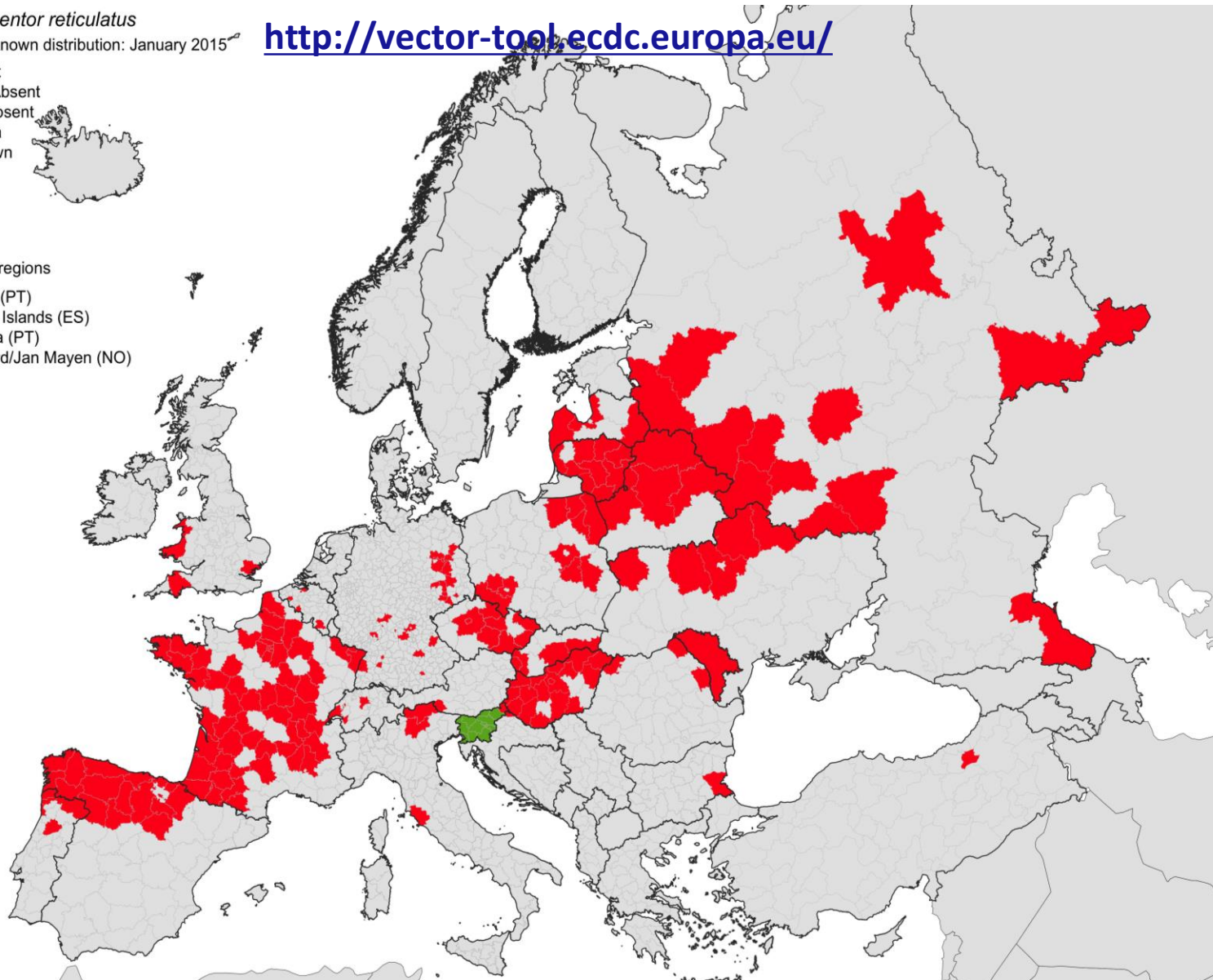
Current known distribution: January 2015

<http://vector-tool.ecdc.europa.eu/>

- Present
- Antic. Absent
- Obs. Absent
- No data
- Unknown

Outermost regions

- Azores (PT)
- Canary Islands (ES)
- Madeira (PT)
- Svalbard/Jan Mayen (NO)



**Very welcome to join us!**





# EFSA's activities on vector-borne diseases

Sofie Dhollander

Animal Health and Welfare team  
ALPHA unit



## VBD MANDATE: TERMS OF REFERENCE

1. **Identify, rank and briefly characterise** the vector borne diseases that present a risk for the EU. This work should cover both **animal diseases and relevant zoonoses** that present a risk for the EU because of their **introduction, re-introduction or further spread**.
2. For each disease identified in point 1, identify and rank possible **pathways of introduction** (or re-introduction) and further **spread** into the EU and assess the potential **speed of propagation** in the EU.
3. For each disease identified in point 1, detail the potential **health consequences and other impacts** to the EU in relation to the existence of suitable vectors and their interaction with local animal populations.
4. Assess the **risk of each disease becoming endemic** in the animal population in the EU.
5. Briefly review the feasibility, availability and effectiveness of the main disease **prevention and control measures** (e.g. diagnostic tools, biosecurity measures, restrictions on the movement, culling, vaccination).



Arthropod-borne pathogen?

Biological transmission?

Pathogen replicates in the following **livestock and pets species: cattle, sheep, goats, swine, equines, dogs or cats**

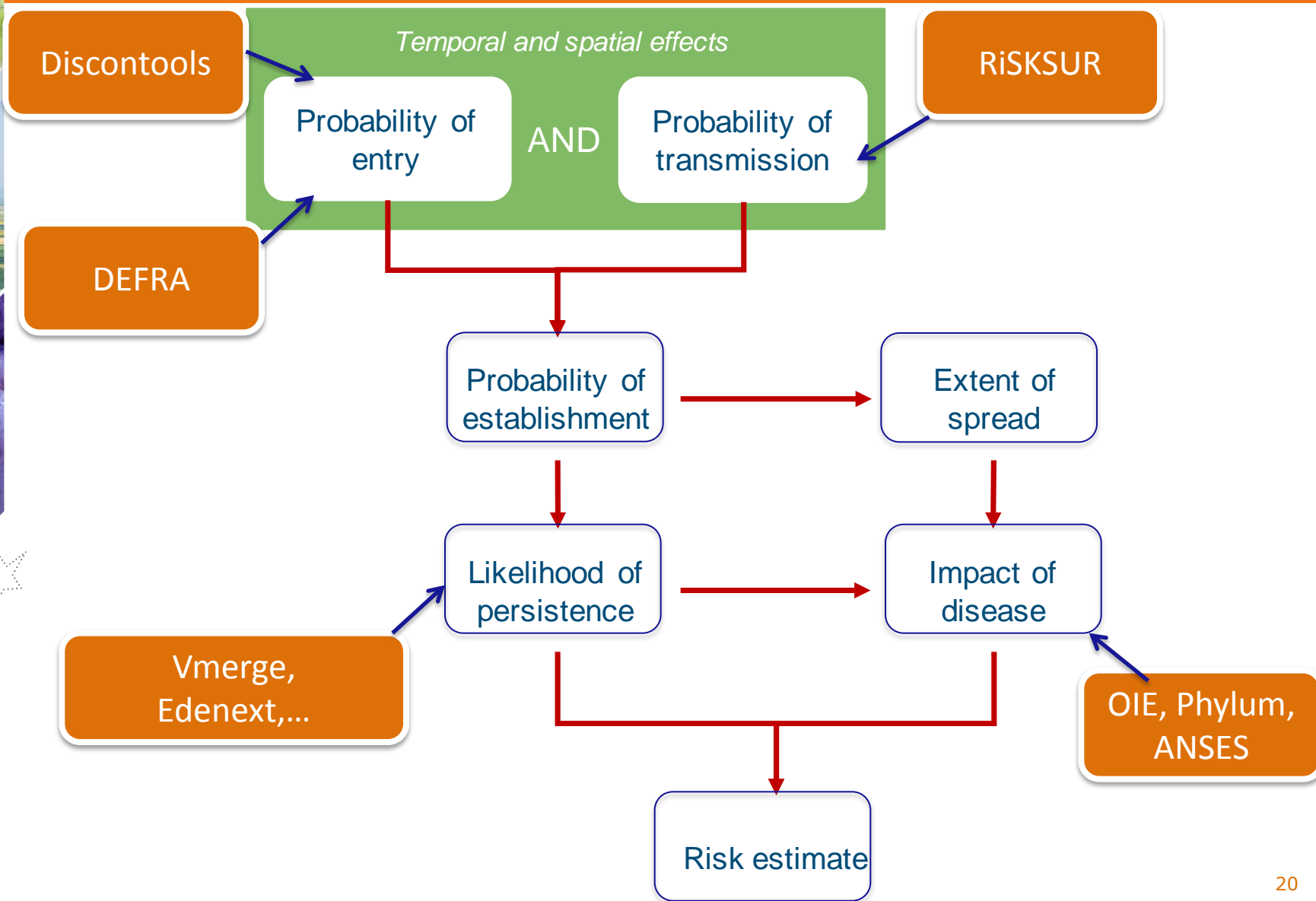
**Exotic pathogen, absent or currently present in only 1 region\*** in the EU?

Vector species **families present in the EU** (or in the other regions)?

Assess **probability of entry** of 39 selected VBD:



# VBD MANDATE: RISK ASSESSMENT FRAMEWORK -CVI



# MINTRISK MODEL- CVI



Copy of KBA MintRisk v40 TULAR.xlsm - Microsoft Excel

Home Insert Page Layout Formulas Data Review View Developer Add-Ins Enterprise Connect

Security Warning Some active content has been disabled. Options...

D100 To what extent does movement of hosts contribute to long-distance spread?

1 MINTRISK MODEL

Triangular Normal Pert MyTest1 100 #iterations (minimum 100)

About the MintRisk model Run MC Output >> Uncertainty analysis Risk contribution Save Get Clear All

Vector-Borne  Zoonotic

**Information how to use the model:** (1) select "Vector-Borne"/"Zoonotic", (2) click button [GO TO 40 PATHWAYS], (3) on the PW-sheet, select for each relevant question the score/uncertainty and type of PW, (4) chose max 3 PWs, (5) return to the Model-sheet and answer all remaining questions. Run the model. NOTE: ONLY CHANGE THE VALUES OF QUESTIONS 18-51 ON THE PATHWAYS SHEET!!

**3 Epidemic occurrence**

5 Surveillance / detection

7 18 Do epidemics of the disease occur somewhere in its current area of distribution? No No

9 20 How likely is it that the disease will NOT be notified to OIE? No

11 21 How likely is it that human disease will NOT lead to notifying the disease to either OIE or WHO? No

13 22 What is the duration of the period between introduction and notification of the infection? No

15 23 Are humans considered dead end hosts? No

17 24 What is the frequency with which the epidemic occurs in the addressed area? No

19 25 How high is the prevalence of the infection in host animals in the region in the end of HRP of an epidemic in that region? No

21 26 How high is the prevalence of infectious vectors in the region in the end of HRP of an epidemic in that region? No

23 27 How high is the prevalence of the infection in humans in the region in the end of HRP of an epidemic in that region? No

22 Summary EPIDEMIC NA (0-0) NA (0-0) NA (0-0)

**23 Endemic occurrence**

24 32 Is disease endemic somewhere in its current area of distribution? Yes Yes

34 33 How high is the prevalence of the infection in host animals in the region? moderate moderate

36 34 How high is the prevalence of the infection in vectors in the region? very low very low

37 34 How high is the prevalence of the infection in humans in the region? very low very low

37 Summary ENDEMIC moderate (0.42-0.574) very low (0.005-0.087) NA (0-0)

**38 Pathways introduction**

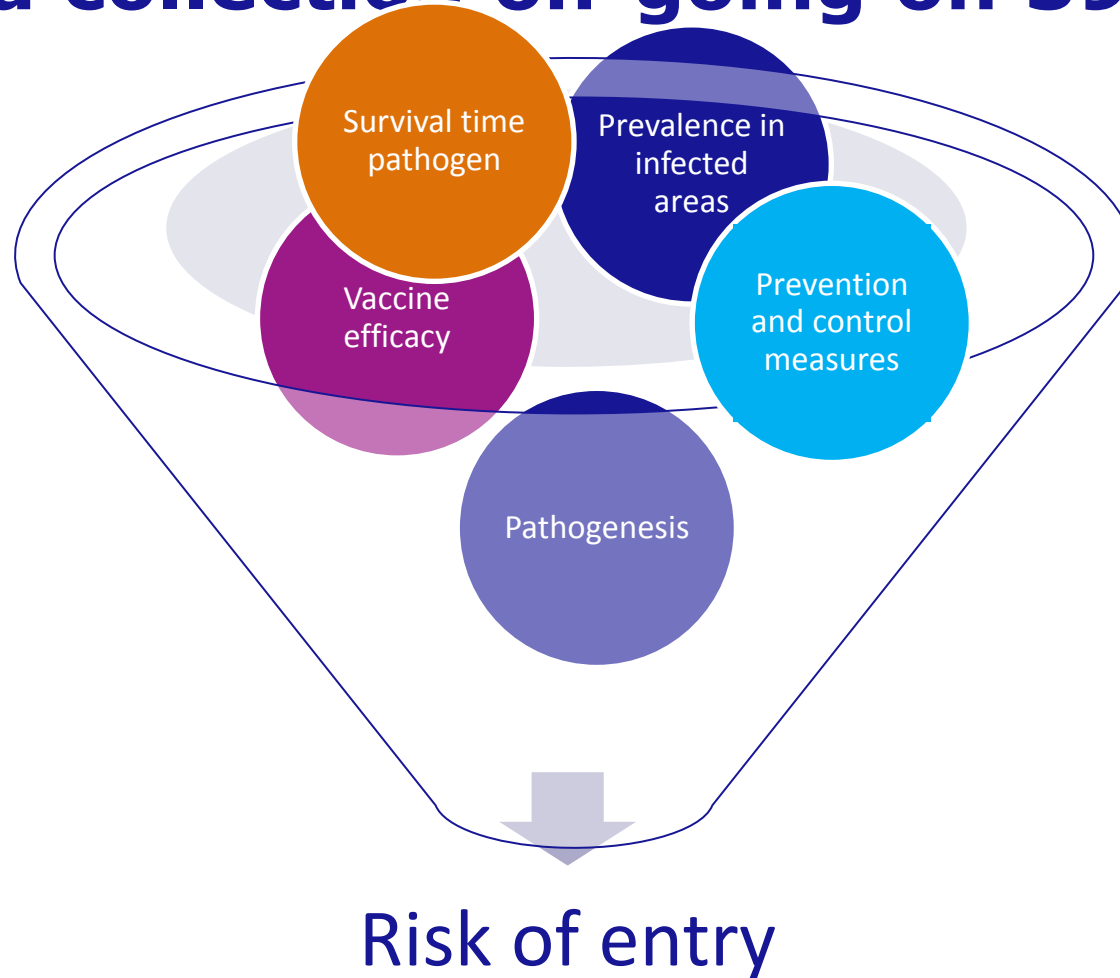
39 PW:1 host animal PW:2 vector

40 35 What is the total volume of the animals / vectors / commodities / humans moved along the pathway (use comment for warninginfo COMMODITY)? minor minor

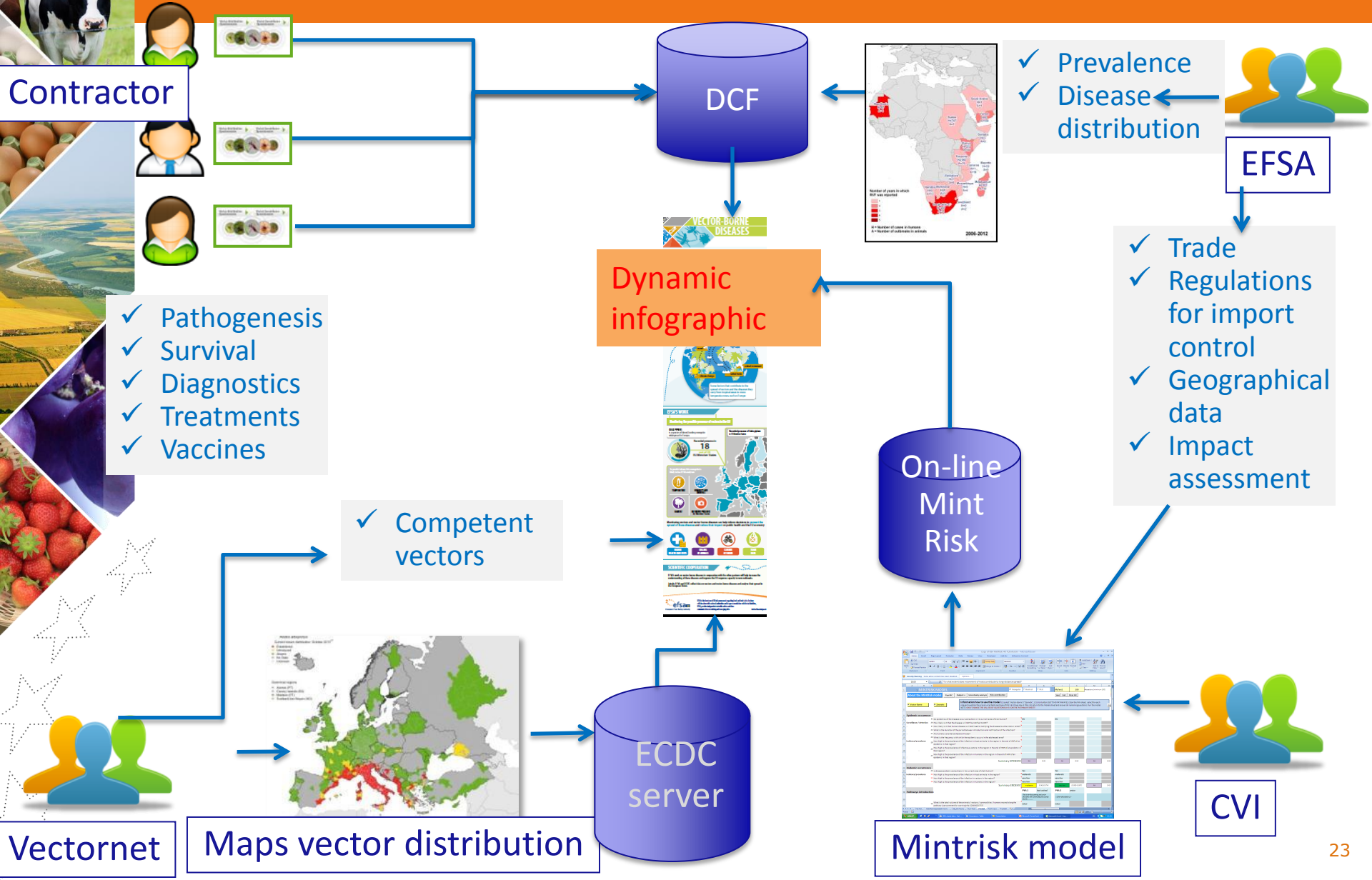
Ready FatTail RiskMatrixEstablishment DB\_MyTest1 RunTest Model Pathways PestDB 89%

## RISK OF ENTRY

### Data collection on-going on 39 VBD:

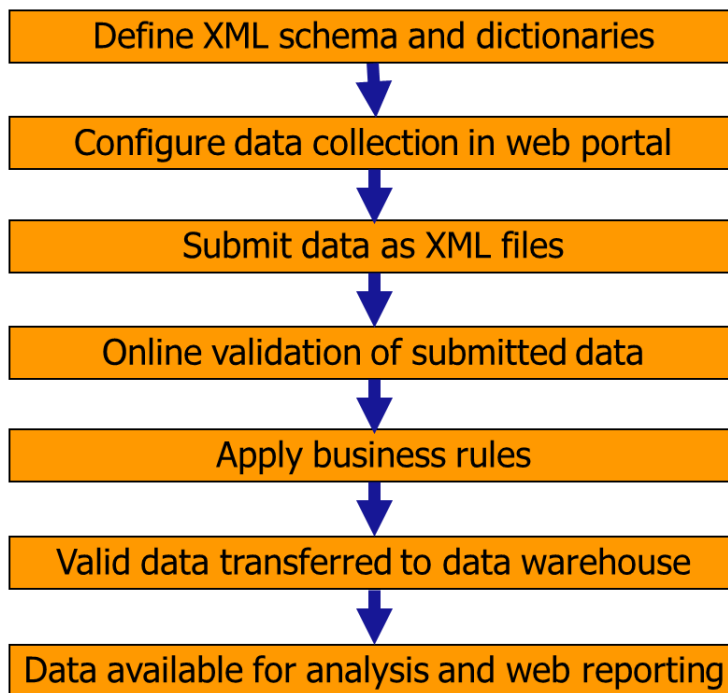


# DYNAMIC INFOGRAPHICS



# OUTSOURCE DATA COLLECTION

**Data Collection Framework is a secure web portal which supports the submission and validation of datasets transmitted to EFSA for use in risk assessment and opinions**



## Data model for vectors

Field name
StudyID
Id_Op
Study type
VBD
sampMatCode
Age
Route
Intervention
testsubstance
sampUnitSize
anMatCode
anMatText
anMethCode
paramCode
resValUnit





# TIMELINE

Task	Jul 15	Oct 15	Nov 15	Dec 15	Jan 16	Mar 16	Jun 16	Jul 16	Sep 16	Dec 16		
		TC	WG		WG	TC	WG	TC		TC	WG	
1. External data collection (ramework contract)					1. Pathogenesis 2. Survival 3. Diagnostics 4. Treatments 5. Vaccines							
2. External data collection Vectornet	1. List competent vectors 2. RA Entry-vectors											
3. External model development Minrisk model	European version of model 1. On-line application 2. Adapted questions and answers											
4. EFSA 1. Data collection	1. Prevalence/disease distribution 2. Trade 3. Regulations for import control 4. Geographical data			Expert knowledge elicitation: -Illegal trade								
	5. Impact assessment Develop methodology											
2. Assessment			ENTRY/TRANSMISSION/ESTABLISHMENT/PERSISTENCE						IMPACT			
3. Dynamic infographics	Develop outline / web-applications								Connect data sources (collected information of prevalence, diagnostics, prevention and control, vector distribution)			

4. Draft opinion