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VECTOR-BORNE DISEASES: SPAIN

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June 2025

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SUMMARY

- 1. Spain and VBDs: concept and importance
- 2. West Nile Fever (WNF)
- 3.Bluetongue
- 4.Epizootic Hemorrhagic disease (EHC)
- 5. Crimean-congo hemorrhagic fever
- 6.Country needs regarding VBD surveillance and control.
- 7. Conclusions

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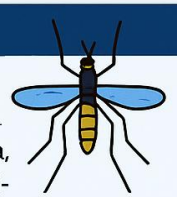
SPAIN AND VBDs: Concept and importance

VECTOR-BORNE DISEASES: CONCEPT AND IMPORTANCE

WHAT ARE VBDs?



A heterogeneous group of diseases with different clinical and pathological manifestations caused by various pathogens (parasites, bacteria, viruses) and transmitted by vectors (e.g., mosquitoes, ticks, flies).

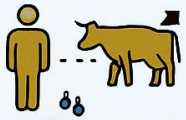
GLOBAL IMPACT (WHO DATA)

- Represent 17% of all infectious diseases
- Cause >700,000 deaths annually

Caused by: parasites, bacteria, or viruses

WHY ARE VBDs GAINING IMPORTANCE?

Zoonotic Nature



- Transmitted between animals and humans

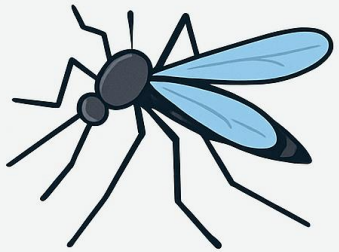
Examples (tick-borne):

- Lyme disease
- Tick-borne encephalitiis
- Crimean-Congo hemorrhagic fever

Emerging Infectious Diseases

- Appear in new susceptible poppulations
- Increase in incidence or geographic range
- Epidemiological changes:
  - New hosts
  - New transmission routes

Vectors Can Travel Long Distances



Increases the transmission range of zoonotic diseases

Pathways for Vector Introduction into New Areas

- Human travel & international trade
- Migratory birds

Animal movement:

- Livestock transport, Illegal exotic animal trade
- Changes in agricultural practices

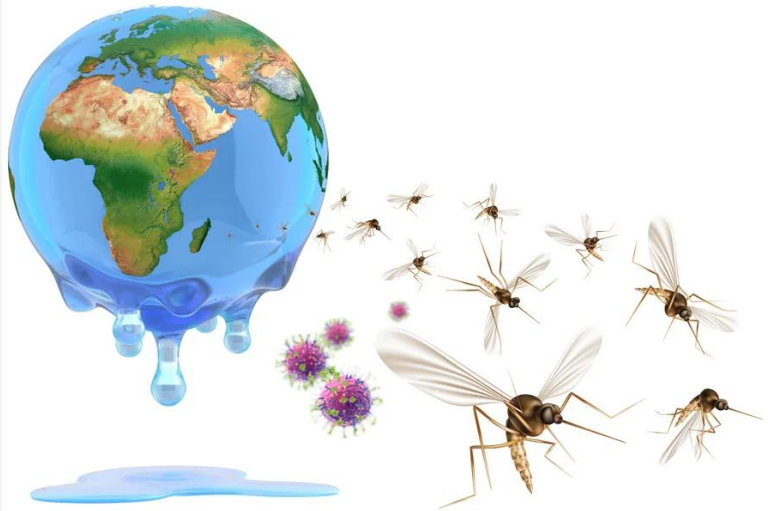
Environmental Factors Affecting Vector Establishment

Climate change
(So important in Spain)

- Alters temperature and humidity patterns

Extreme weather events

- Favor short-term amplification of disease spread



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WEST NILE FEVER

NATIONAL WEST NILE FEVER SURVEILLANCE PROGRAM

Equine Surveillance

PASSIVE	ACTIVE
Clinic signs	Sentinel animals

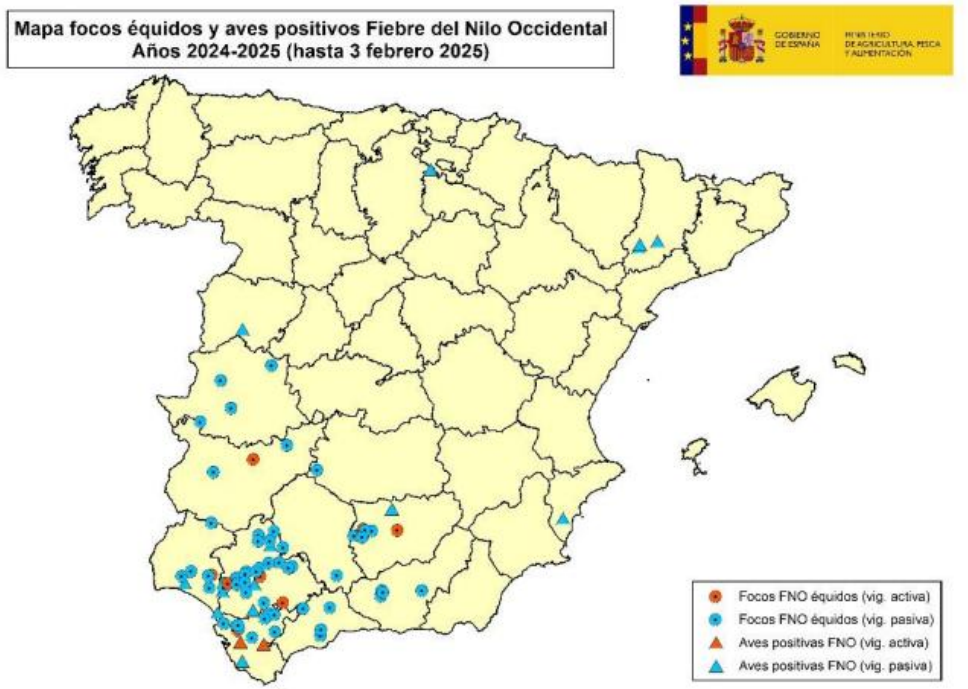
Avian Surveillance

PASSIVE	ACTIVE
Clinic signs	Sentinel animals: wild and domestic birds

Entomological surveillance

to know the dinamic of the vector

Culex



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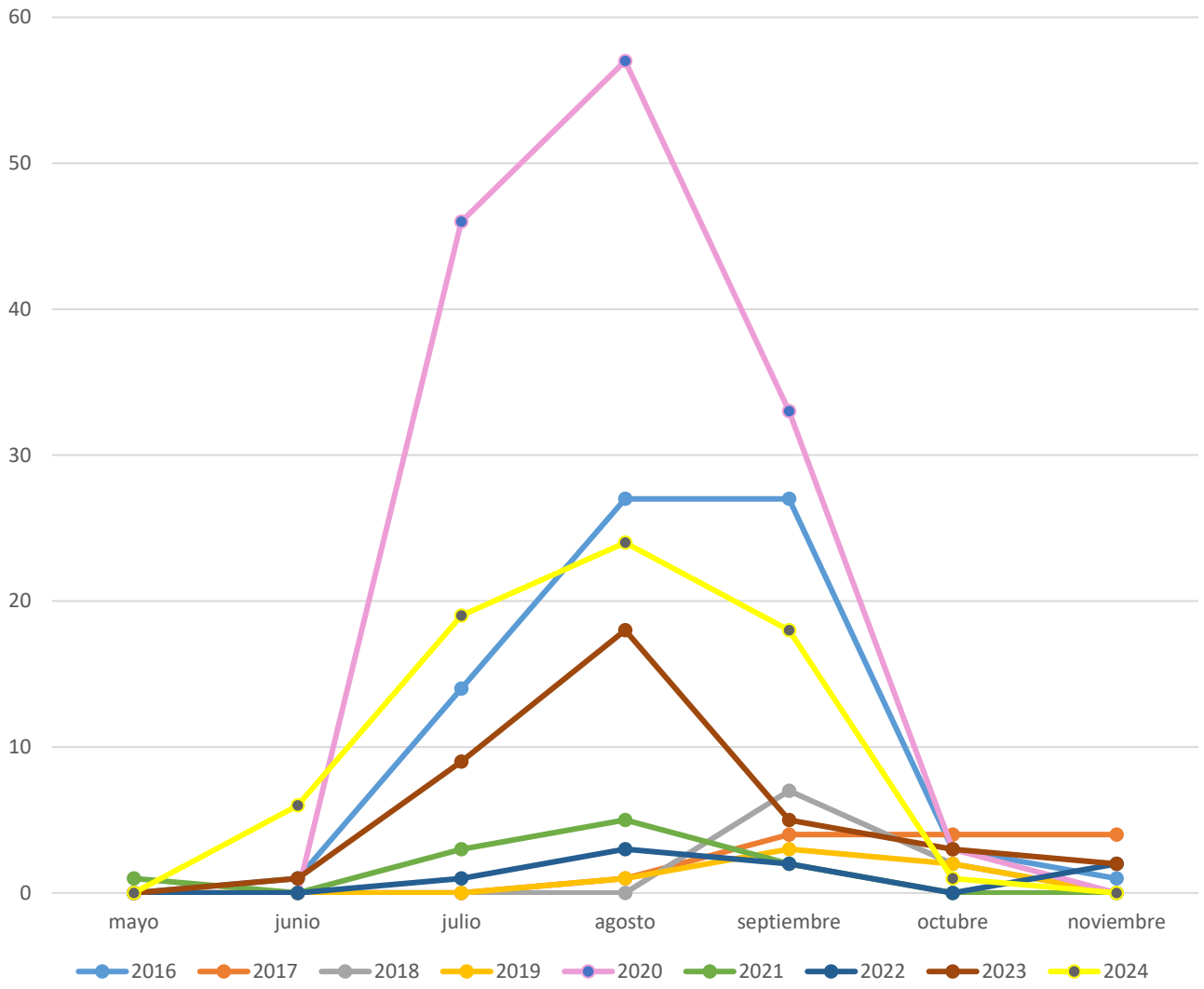
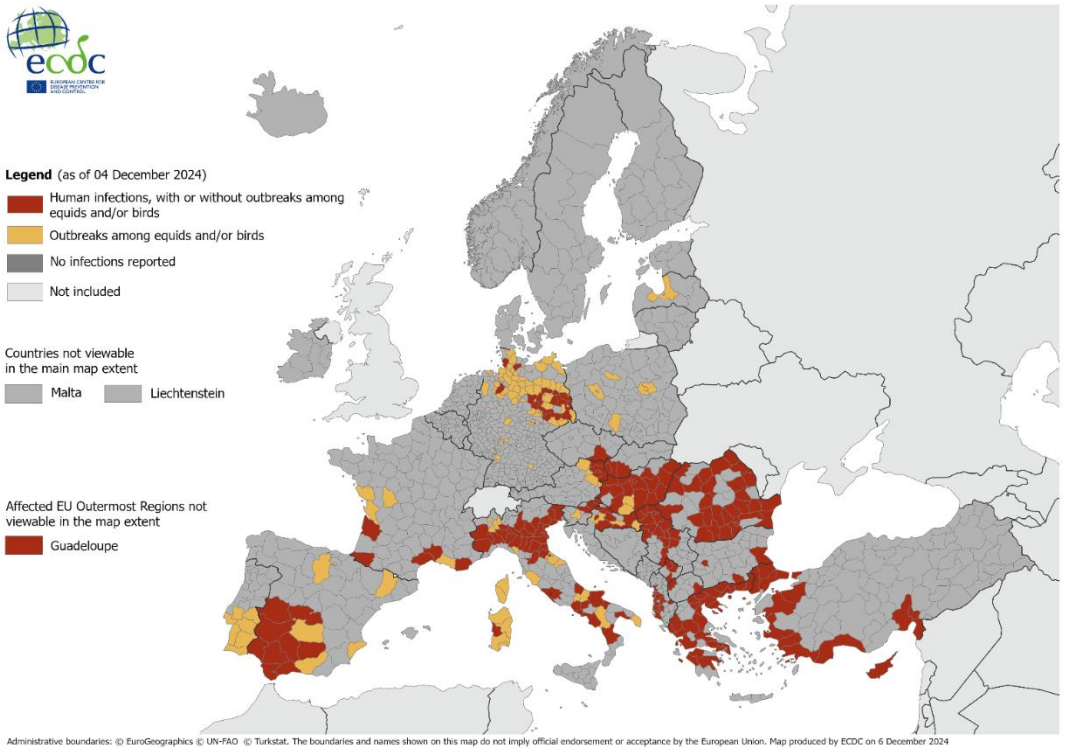
WEST NILE FEVER

OUTBREAKS SPAIN 2016-2024 EQUINES



	OUTBREAKS 2024 SPAIN	OUTBREAKS 2024 EU
EQUINES	68	504
BIRDS	15	427
HUMANS	138	1436



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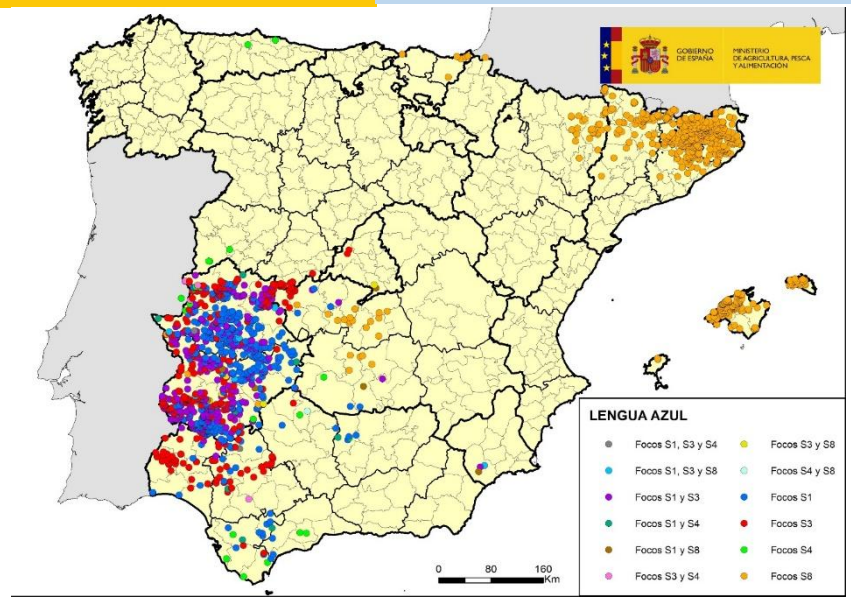
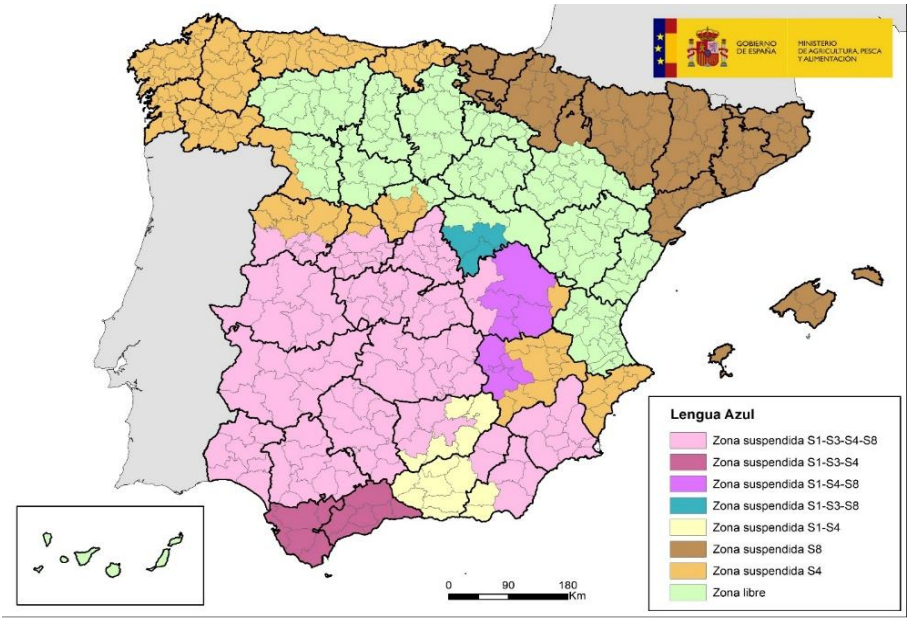
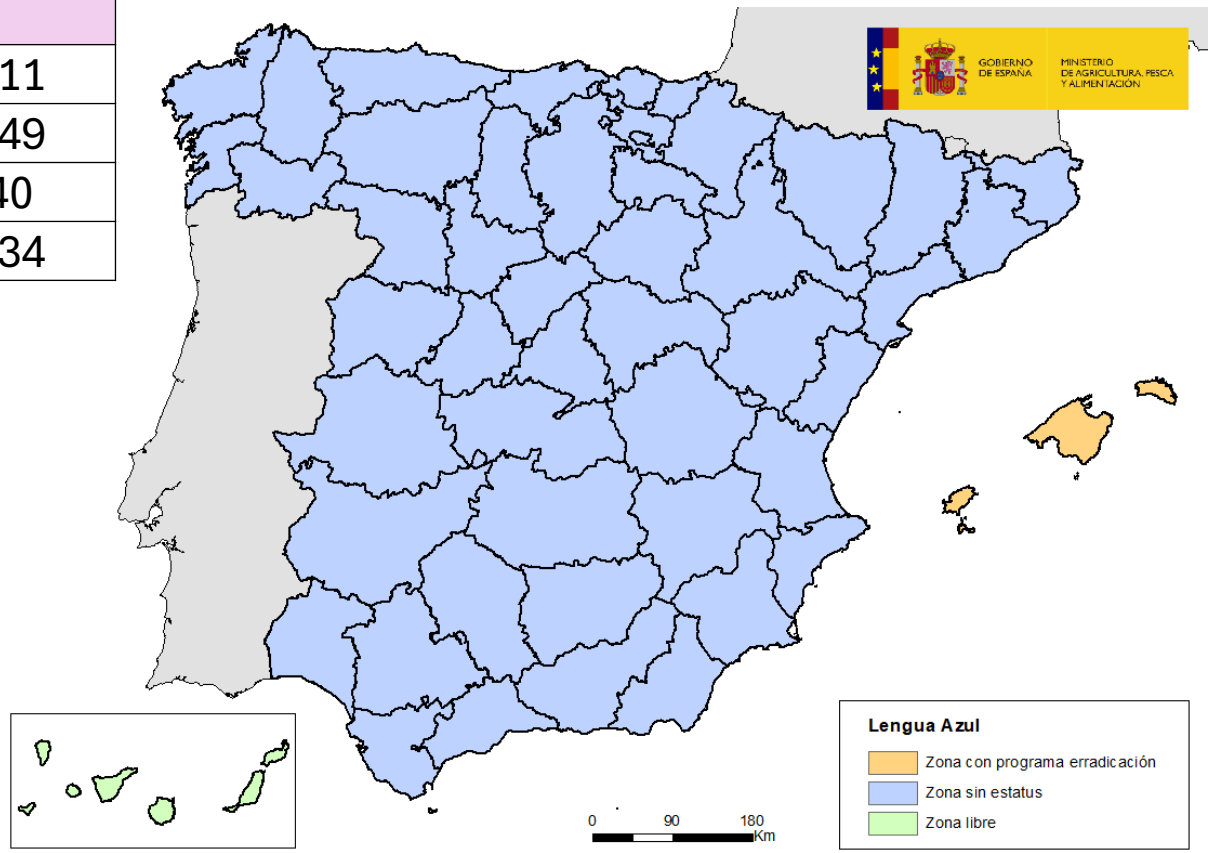
BLUETONGUE

Epidemiological Situation 2024/25



Total BTV outbreaks 2024	
S1	711
S3	649
S4	40
S8	734





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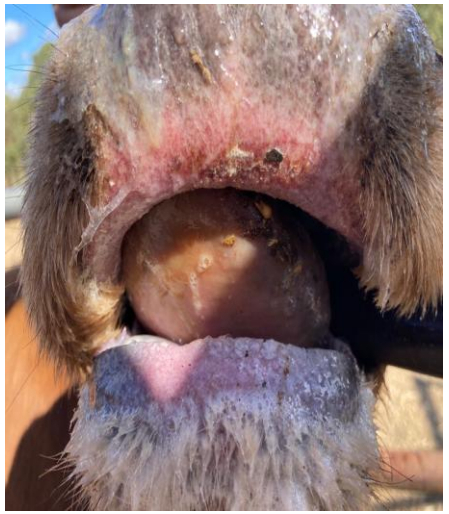
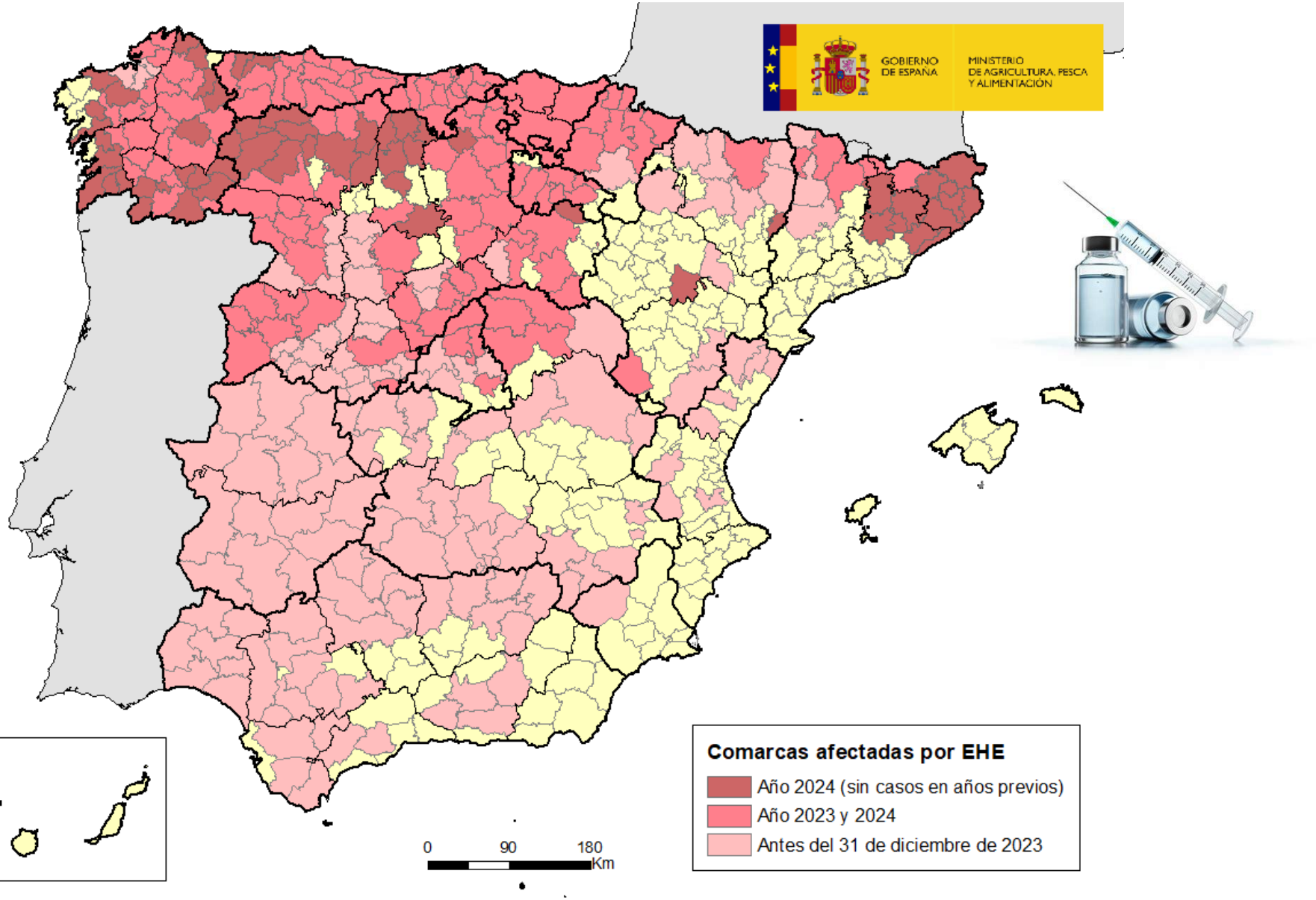
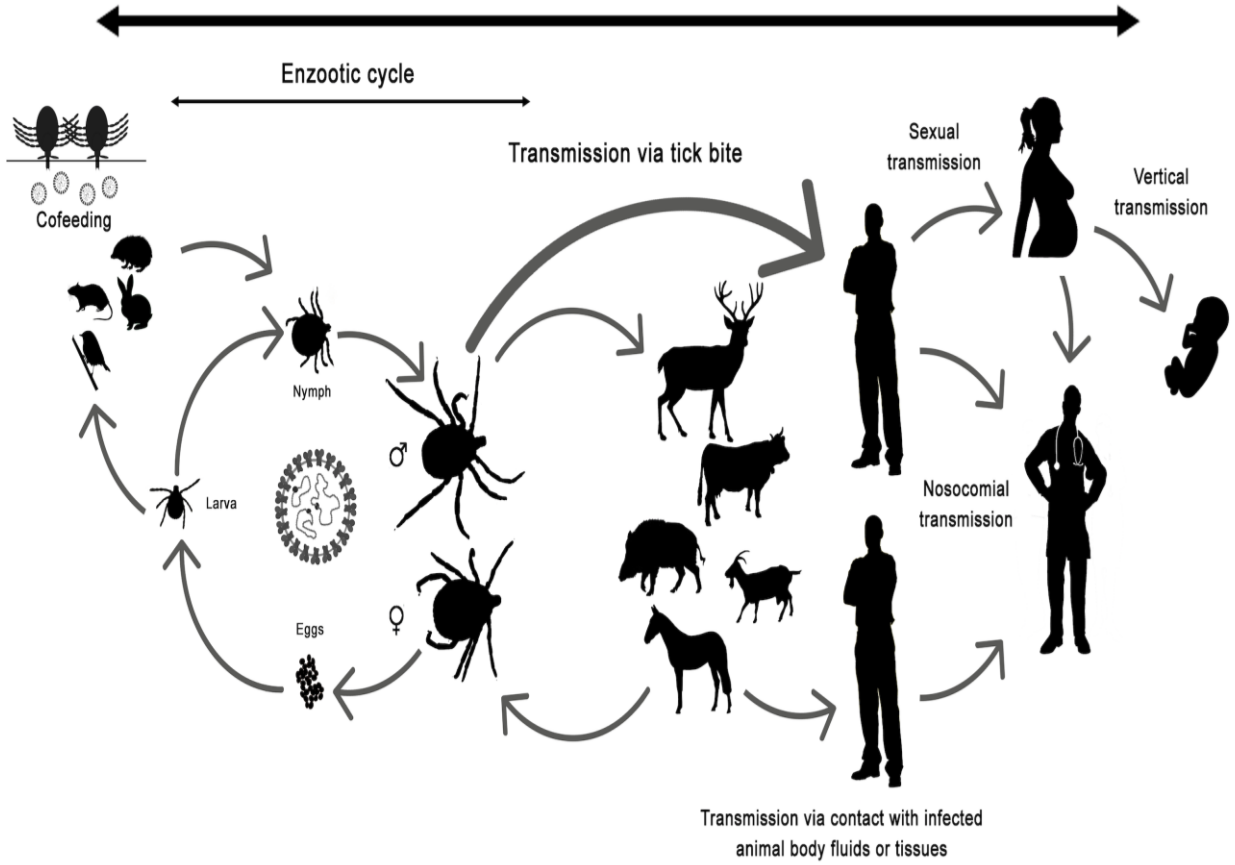
EPIZOOTIC HEMORRHAGIC DISEASE (EHD)





CRIMEAN-CONGO HEMORRHAGIC FEVER

Epidemiology in Spain: First autochthonous human case reported in 2016 (1 retrospective case in 2013). Endemic with sporadic cases, especially in western and central Spain, with 17 human cases detected, 7 out of them died.
Animals are asymptomatic.



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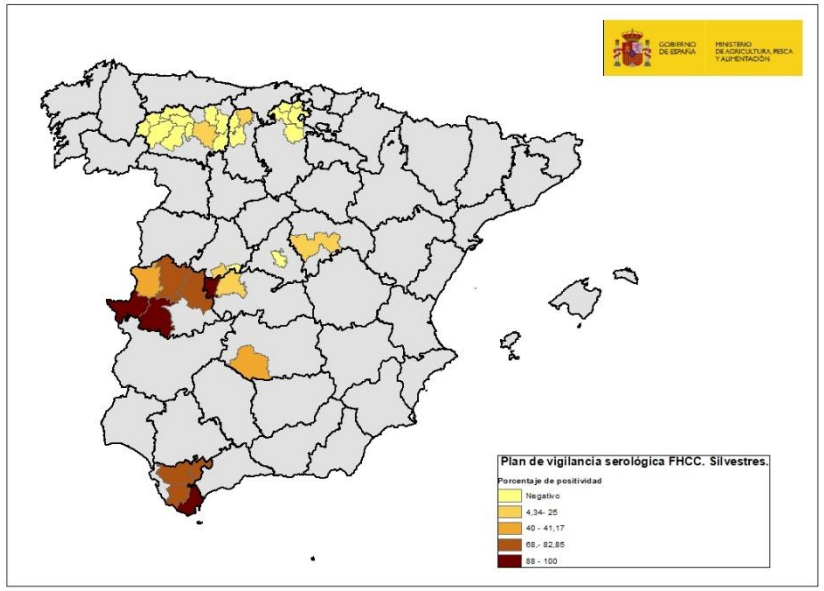
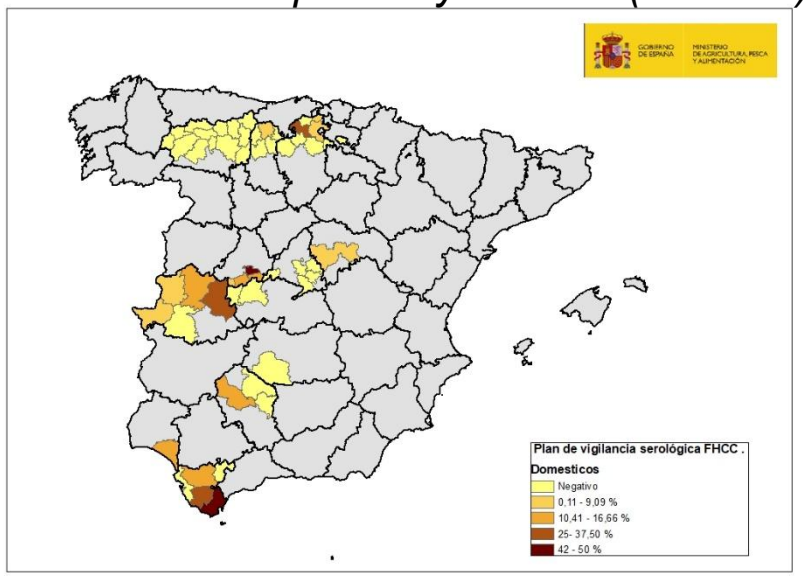
CRIMEAN-CONGO HEMORRHAGIC FEVER

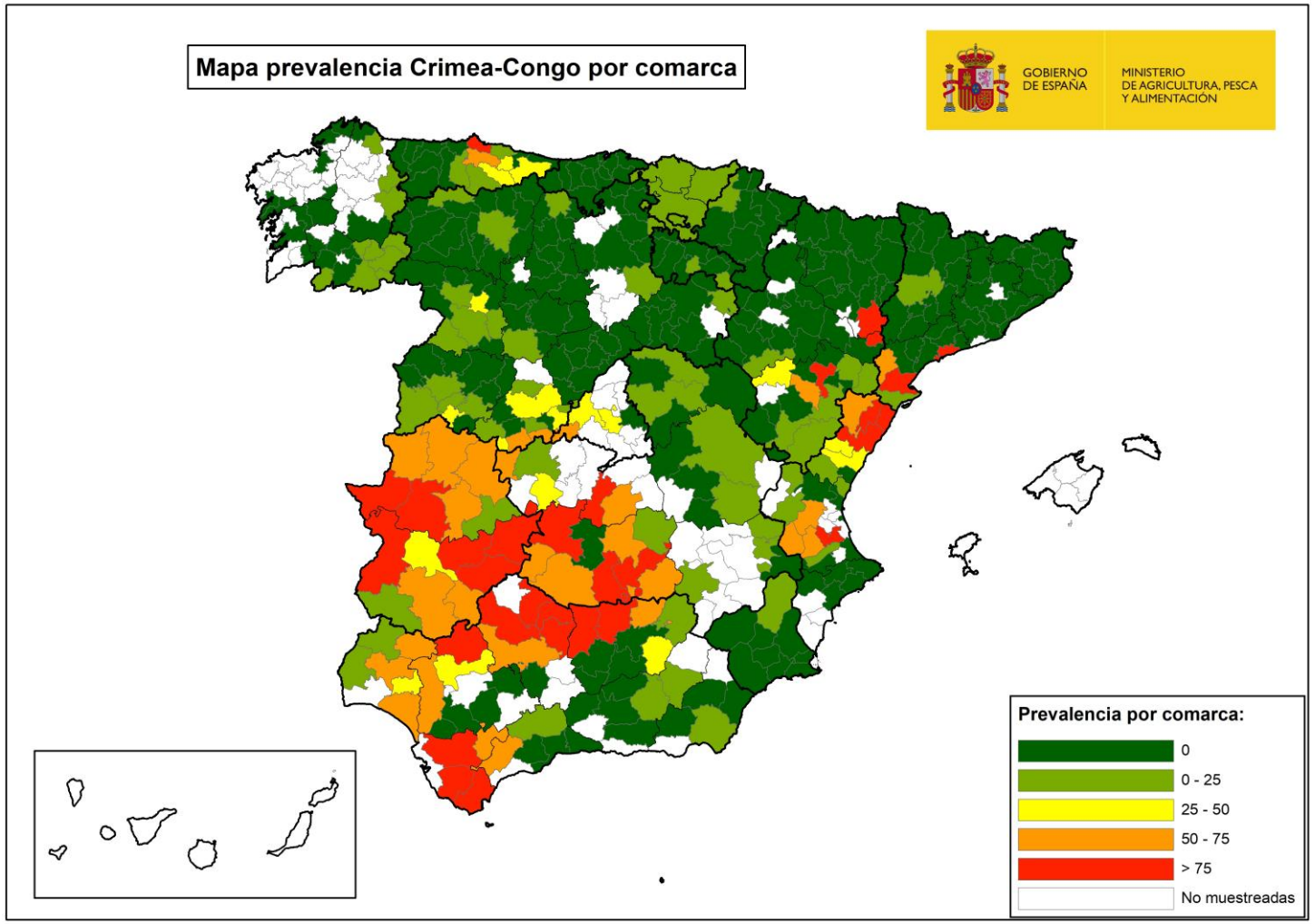
CCHF *seropositivity in wild animals (2017/18)*



CCHF *seropositivity in cattle (2017/18)*

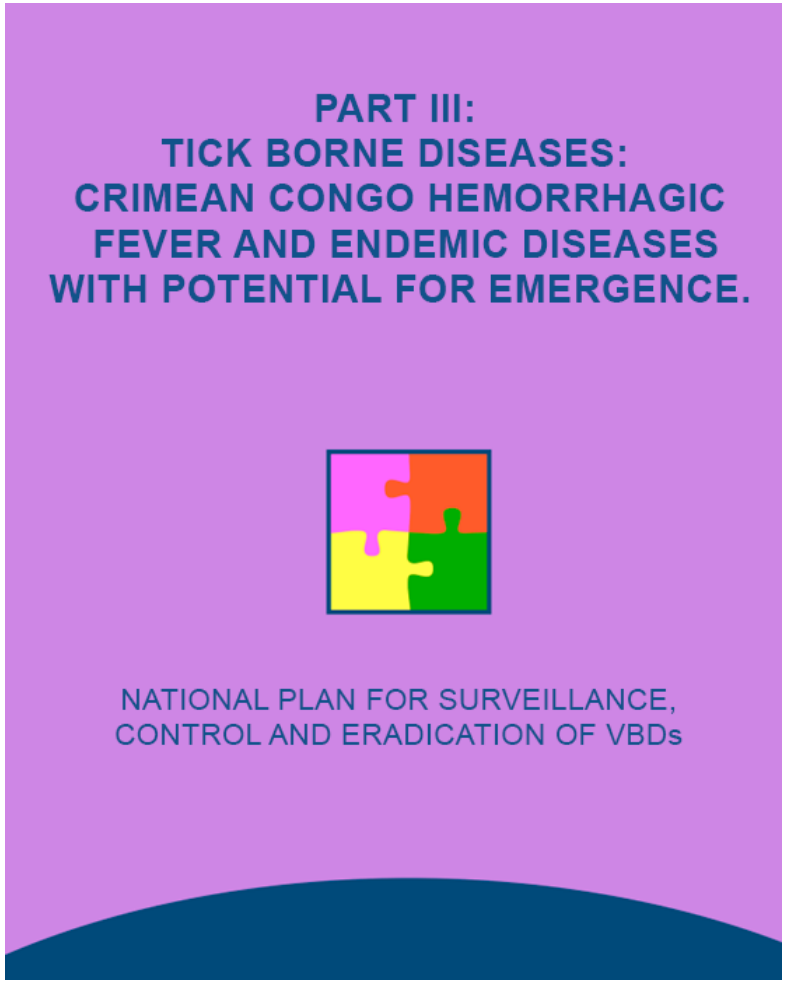


CCHF *seropositivity in wild animals (2022/23)*



CRIMEAN-CONGO HEMORRHAGIC FEVER

National Plan for Surveillance, Control, and Eradication of VBDs (Ministry of Health)



COMPONENTS FOR SURVEILLANCE, CONTROL AND ERRADICATION OF VBDs

- Coordination
- Animalth Health
- Human Health
- Enviromental Health
- Vector Management
- Comunication

CRIMEAN-CONGO HEMORRHAGIC FEVER

National Plan for Surveillance, Control, and Eradication of VBDs (Ministry of Health)

Risk Scenarios for Tick-Borne Diseases

Scenario 0: The presence of the vector has not been historically detected.

0a: Periodic entomological surveillance is conducted under conditions and in areas optimal for a specific tick species, without having confirmed its presence.

0b: No entomological surveillance is conducted and there are no prior data on the presence of the species in the area of interest.

Scenario 1: The presence of the vector has been detected, without detection of human cases with active infection.

1a: The presence of the pathogen in ticks in the area of interest has not been confirmed and/or serological studies in humans or animals have not shown infection.

1b: The presence of the pathogen in ticks in the area of interest has been confirmed and/or infection has been detected through serological studies in humans or animals.

Scenario 2: Detection of human cases.

2a: Detection of human cases with active infection in previous seasons (not the current or last one).

2b: Sporadic detection of human cases with active infection in the current or previous season.

2c: Areas with sustained detection of human cases over the last three or more seasons.

**Positioning within a given scenario must be evaluated periodically for the same territory (municipality, province, community, or selected geographic area). The territory should also be characterized according to the tick species. If, under adequate surveillance, the risk situation reverts and remains absent for three years, the area may move to a previous scenario.*

Scenarios		Activities
Scenario 0	0a 0b	**ACo1**. Establish, at each level, a Permanent Committee for the development, contro and monitoring of the Plan, ensuring the participation of individuals who are experts in ticks and tick-borne diseases. **ACo2**. Promote, at each level, contacts and alliances with institutions and stakeholders with competencies or interests in the prevention, surveillance, and control of tick-borne diseases. **ACo3**. Establish indicators to evaluate the relevant section of the Plan related to tick-borne diseases, produce periodic reports, and based on the results, implement necessary measures to correct any identified deficiencies. **ACo4**. Ensure that information on tick-borne diseases is integrated into the surveillance system. **ACo5**. Ensure diagnostic capacity and coordination with Microbiology laboratories to conduct necessary diagnostic tests to rule out tick-borne diseases. **ACo6**. Establish coordination with High-Level Isolation Units (UAAN) to maintain safety conditions during the admission and transfer of people with CCHF. **ACo7**. Ensure that the strategic reserve has availability of treatments for this disease and that mechanisms are established for their use in case of need. **ACo8**. Promote the integration of vector management into Public Administration, including entomologists with expertise in ticks. **ACo9**. Ensure the execution and dissemination of risk assessments for the introduction and expansion of the CCHF vector(s), considering factors such as terrain, climate conditions, etc.,with surveillance improvement recommendations.
Scenario 1	1a 1b	Reinforce the activities of Scenario 0 and, additionally: **ACo10**. Promote citizen science projects related to the prevention, surveillance, and control of CCHF. **ACo11**. Ensure the execution and dissemination of risk assessments regarding the expansion of the vector and emergence of autochthonous CCHF cases. **ACo12**. Establish warning/alert circuits for the detection of autochthonous CCHF cases. **ACo13**. Conduct simulations of actions before imported and autochthonous cases
Scenario 2	2a	Reinforce the activities of Scenarios 0 and 1.
	2b	Reinforce the activities of Scenarios 0 and 1, and additionally: ACo14. Ensure that, upon the occurrence of human cases, all actions for case management and control are coordinated. ACo15. Consider activating the Response Coordination Committee at the corresponding level. ACo16. Ensure coordination in the event that multiple Response Coordination Committees are established.
	2c	Reinforce the activities of Scenarios 0, 1, and 2b.

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SPANISH PROYECT: GRANT EU-ONE HEALTH

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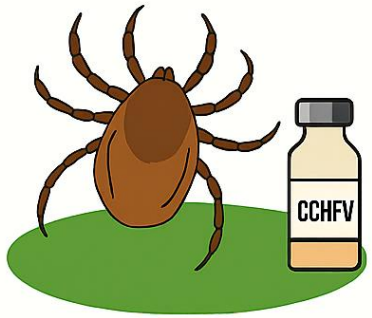
and Food Safety (DG SANTE)

WP1:CRIMEAN-CONGO HEMORRHAGIC FEVER

PATHOGEN UNDER SURVEILLANCE: CCHFV

SURVEILLANCE STRATEGY:

- Ticks will be collected at 29 sites across Spain during 2024-2026
- Twice a year: spring and autumn
- Ticks will be tested for CCHF by PCR
- Serological sampling of wild animals is planned for 2026



SAMPLING STRATEGY:

Site selection by experts

- Geographic representation
- Environmental factors
- Pathogen risk
- Human exposure
- Past animal/human cases

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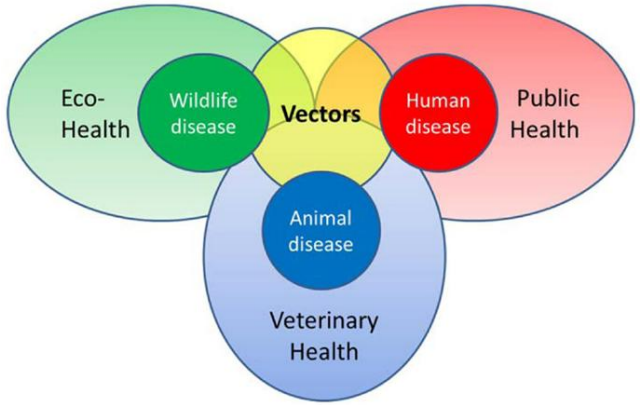
Country needs regarding VBD surveillance and control.

Spain undergoing important steps to deepen one health application which is key for VBD surveillance and control, the correct implementation of these initiatives, which we are starting to implement will be very important: National Plan for prevention, surveillance and control of VBD and Grant One Health

There are two aspects that we are trying to improve specifically:

- Integration of VBD surveillance data collected by public health and animal health authorities and research groups into a single national database (in development)
- Harmonization of data formats to make them comparable at national level (under development in the frame of the Grant One health).

Simulation exercises under one health approach at national and regional level.

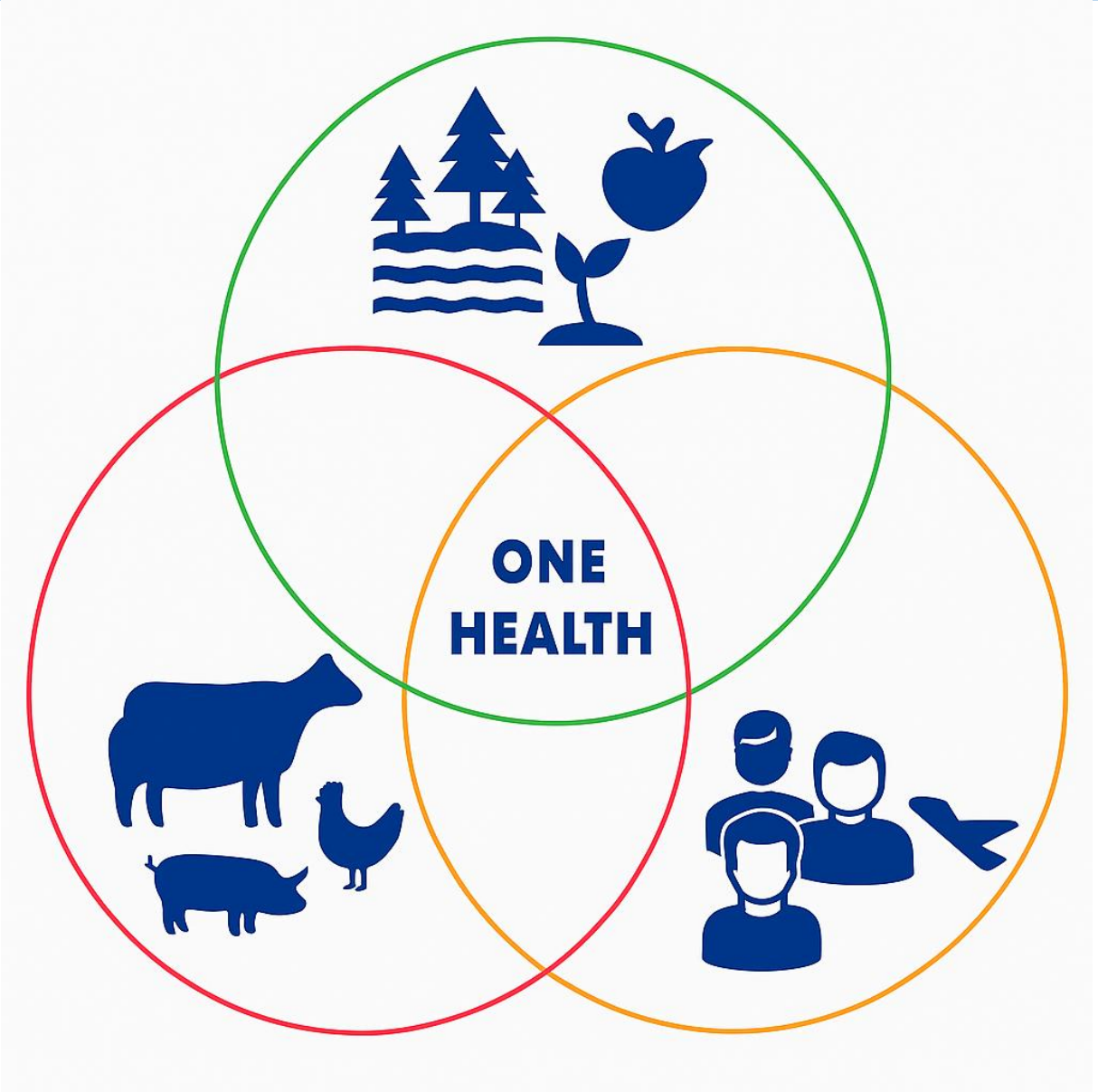


CONCLUSIONS

- Climate change is increasing vector-borne disease risks in the world.

- Importance of vector-borne zoonotic diseases. Some of them are not a problem from Animal Health, but the animal monitoring support is necessary as a tool for Public Health.

- The One Health approach is key, supported by national plans and funding.



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THANKS FOR YOUR ATTENTION