World Organisation for Animal Health

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WOAH Collaborative Centre Reports Activities 2024

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CENTRE INFORMATION

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TOR 1 AND 2: SERVICES PROVIDED

1. Activities as a centre of research, expertise, standardisation and dissemination of techniques within the remit of the mandate given by WOAH

Category	Title of activity	Scope
		Updating the statistics on the dog

Disease control (true)	Dog population census	population in Tunisia using the results of studies conducted by the CNVZ on the dog population in Tunisia. The Statistics on the dog population are being used by regional and central veterinary services to calculate vaccination coverage rates in order to evaluate the animal rabies vaccination campaign.
Epidemiology, surveillance, risk assessment, (true)	National survey on brucellosis in sheep and cattle	CNVZ, in collaboration with the veterinary school in Tunisia, conducted a national survey on brucellosis in sheep and goats during 2023-2024. The primary objective of this survey is to ascertain the true prevalence of brucellosis in small ruminants, thereby facilitating the update of control strategies for the disease.
disease control (true)	A manual of procedures to provide guidelines on the management and control of animal rabies	A working group comprising veterinarians from regional and central level has been convened to elaborate a procedures manual. The manual is based on the results of field studies into the management of an outbreak of canine rabies and the epidemiological particularities of the disease in the Tunisian context. The manual will be approved by the national veterinary services
Disease control (true)	Rabies vaccination campaign	The development of a data collection application on Kobotoolbox for the vaccination campaign data in a pilot area in the north-west of Tunisia. This application will help veterinary services to create of a database of dog owners. The intention is to extend this database to cover the whole country once the necessary logistical resources are available.
economic studies on animal health (true)	Evaluation of the control program of animal rabies	The financial evaluation of the rabies control program focuses on assessing the costs and resource allocation of program activities. This includes analyzing the total costs incurred, such as vaccine procurement, transportation, and cold chain management, operational expenses for vaccination campaigns, public awareness initiatives, and outbreak management. The evaluation aims to

		identify areas where resources can be optimized, such as improving vaccination logistics or targeting high-risk regions, thereby enhancing the program's impact while maintaining fiscal responsibility.
Epidemiology, Surveillance (true)	Preliminary report on the epidemiological analysis of Lumpy Skin Disease outbreaks	CNVZ staff have conducted an in-depth analysis of the lumpy skin disease (LSD) outbreak, focusing on its epidemiological characteristics, spread dynamics, and environmental risk factors. The report includes a detailed description of the outbreak, comparing epidemiological indicators of the disease between affected regions, and highlights the role of environmental risk factors and the spatial-temporal distribution of cases.
Epidemiology, Surveillance, Risk Assessment, Modeling (true)	Risk mapping of lumpy skin disease (LSD) in Tunisia	A risk map for Lumpy Skin Disease (LSD) was developed using advanced modeling techniques, specifically a machine-learning model with Maxent, to identify high-risk zones and prioritize areas for targeted intervention. Through collaborative efforts involving both private and public veterinarians, valuable insights into LSD outbreaks and associated risk factors were gathered. The resulting risk map was shared with veterinary services to enhance resource allocation, support early detection, and improve surveillance efforts.
Disease control (true)	Determining which geographical areas are to be vaccinated against lumpy skin	After the introduction of LDS in Tunisia, significant efforts were undertaken to combat the spread of the disease through a targeted vaccination campaign. Priority geographical areas for vaccination were determined based on a scientific and epidemiological approach. The priority areas for urgent vaccination were identified based on the following criteria: • Recently infected zones with active outbreaks (active foci), • Vector activity within a 5 km radius, • Rate of disease spread calculated for the most affected governorates (Table 1), • Circular note No. 174 dated December 6, 2024, from the Minister of Agriculture, Water Resources, and Fisheries, • Recommendations from

	disease must be given priority	EFSA regarding vaccination against LSD. The analysis led to the classification of vaccination zones into three categories : • Sectors located within a 5 km radius of the outbreak, where the probability of disease transmission is 95%, meaning a 5% probability of disease spread beyond this radius (EFSA, 2021). • Sectors located within a 10 km radius, where the probability of disease transmission is 99%, meaning a less than 1.1% probability of disease spread beyond this radius (EFSA, 2021). • Sectors located within a 30 km radius, where the probability of disease spread beyond this radius is 0.1% (EFSA, 2021).
Epidemiology, Surveillance, Risk Assessment, Modeling (true)	Risk mapping of Bluetongue, Rift valley fever and epizootic hemorrhagic disease	CNVZ developed multiple risk maps for vector-borne diseases, including bluetongue, Rift Valley fever, and epizootic hemorrhagic disease, during the high-risk period. This approach involved a two-step process: - Mapping the Probability of Vector Presence: The first step focused on creating a map indicating the probability of vector presence. This was achieved by generating a map with Maxent using climatic factors such as temperature and rainfall, along with data on the presence or absence of vectors in specific locations. - Producing the Risk Map: In the second step, a risk map was generated using a Boolean query that integrated the probability of vector presence with additional risk factors, including animal movement, animal density, and accessibility. The results categorized the risk levels into four distinct categories: negligible, low, high, and very high risk. This methodology provided a comprehensive and data-driven tool for identifying and prioritizing areas at risk of vector-borne disease outbreaks.
		This collaboration aims to : - Identify pathological dominants (infectious and parasitic) in the bat and rodent

epidemiology (true)	Eco-epidemiology of rodent and bat diseases in Tunisia Collaboration: IPT-CNVZ-RKI (Germany)	community in Tunisia. - Analyze intra- and interspecific viral variability. - Identify pathologies shared with domestic fauna - Study the mechanism of interaction and pathogen transfer at the human-domestic animal-wildlife interface - Predict the future zoonotic potential of viruses identified using the OMIC tool.
Epidemiology, Surveillance, Risk Assessment, (true)	Epidemiology of West Nile Fever in epizootic region according to One Health approach Collaboration: IPT-CNVZ	The activities conducted to : -Identify the serological and virological profile of the infection in equids -Identify possible viral circulation in the vector
Training, capacity building (true)	Field capture and sample collection on rodent Collaboration: CNVZ- University of Nebraska-Lincoln (USA) in the frame of Borlaug program	CNVZ, in collaboration with the university of Lincoln Nebraska (USA) has organized a theoretical and hands-on rodent capture session. These sessions included site selection criteria, setting up traps, capture and anesthesia, sampling with respect of animal welfare and biosecurity criteria.
Epidemiology, Training, capacity building (true)	Breeders LSD awareness and risky practices in bordering regions with Algeria Collaboration : ANSES-CNVZ	Efforts were made to identify potential lumpy skin disease (LSD) outbreaks in farms near the Algerian border by conducting an active surveillance and inspecting livestock for clinical signs such as skin nodules and fever. Simultaneously, a survey was conducted to assess breeders' knowledge of LSD, their control practices, and biosecurity measures. The findings revealed gaps in awareness and implementation of preventive measures, highlighting the need for targeted training and improved biosecurity protocols. These activities contributed to early detection of LSD cases and provided a foundation for strengthening disease control strategies in high-risk areas.
Training, capacity building (true)	Collaboration with Robert Koch-Institute, RKI as a partner on related to Harnessing Sequencing-Based Technologies for Pandemic Preparedness using a One Health-based Approach in Tunisia and Neighboring Countries	Capacity building for the early detection of zoonotic viruses in Tunisia and neighboring countries in order to improve pandemic preparedness.

Epidemiology (true)	Collaboration with university of Lincoln Nebraska in the frame of Borlaug fellowship program on wildlife animal diseases	Support for implementing field surveys to diagnose diseases with epidemic potential in rodents and bats

TOR 3: HARMONISATION OF STANDARDS

2. Proposal or development of any procedure that will facilitate harmonisation of international regulations applicable to the main fucus area for which you were designated

Proposal title	Scope/Content	Applicable Area

3. In exercising your activities, have you identified any regulatory research needs* relevant for WOAH?

No

4. Did your Collaborating Centre maintain a network with other WOAH Collaborating Centres (CC), Reference Laboratories (RL), or organisations designated for the same specialty, to coordinate scientific and technical studies?

No

TOR 4 AND 5: NETWORKING AND COLLABORATION

5. Did your Collaborating Centre maintain a network with other WOAH Collaborating Centres, Reference laboratories, or organisations in other disciplines, to coordinate scientific and technical studies?

Yes

Name of WOAH CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
CIRAD	Montpellier France	Europe	Development of risk mapping for dog rabies : To create a comprehensive risk map for dog rabies that identifies high-risk areas, guides targeted interventions, and supports effective disease control and prevention strategies.
			The assessment of breeders' knowledge, control practices,

ANSES	France Tunisia	Europe	and biosecurity measures related to lumpy skin disease (LSD)
ANSES	France Tunisia	Europe	Developing a model for FMD vaccination

TOR 8: SCIENTIFIC MEETINGS

9. Did your Collaborating Centre organise or participate in the organisation of scientific meetings related to your main focus area on behalf of WOAH?

Yes

National/International	Title of event	Co-organiser	Date	Location	No. Participants
Internationally	WOAH general session	WOAH	2024-05-31	France	2
Internationally	Ad-hoc meeting – Tunisia PROVNA project webinar series	WOAH-IZS TERAMO	2024-05-20	tunisia	5
Internationally	WOSA workshop on the PROVNA project and 'Foresight'	WOAH-IZS TERAMO	2024-07-02	Lisbon, Portugal	2
Internationally	Regional Workshop on Rift Valley Fever surveillance in Northern African countries – PROVNA2	WOAH-IZS TERAMO	2024-11-12	Tunisia	4

TOR 9: DATA AND INFORMATION DISSEMINATION

10. Publication and dissemination of any information within the remit of the mandate given by WOAH that may be useful to Members of WOAH

a) Articles published in peer-reviewed journals:

3

Ben Salem A, Ben Aicha E, Kalthoum S, Dhaouadi A, Hajlaoui H, Bel Haj Mohamed B, Ben Slimen I, Khalfaoui W, Gharbi R, Guesmi K, Ben Ali M, Fatnassi N, Seghaier C, Ben Hassine T and Gharbi M (2024) Estimation of the economic impact of a bluetongue serotype 4 outbreak in Tunisia. Front. Vet. Sci. 11:1310202. doi: 10.3389/fvets.2024.1310202

Kalthoum S, Mzoughi S, Gharbi R, Lachtar M, Bel Haj Mohamed B, Hajlaoui H, Khalfaoui W, Dhaouadi A, Ben Sliman I, Ben Salah C, Kessa H, Benkirane H, Fekih AJ, Barrak K, Sayari H, Bahloul C, Porphyre T. Factors associated with the spatiotemporal distribution of dog

rabies in Tunisia. PLoS Negl Trop Dis. 2024 Aug 5;18(8):e0012296. doi: 10.1371/journal.pntd.0012296. PMID: 39102447; PMCID: PMC11326702.

Kalthoum S, Gharbi R, Ali MB, Sliman IB, Haboubi N, Barrak K, Fakhfekh K, Romdhane RB, Hechri HE, Boughanemi S, Seghaier C, Bahloul C. A case-control study of risk factors for dog rabies in Northeast Tunisia. Open Vet J. 2024 Nov;14(11):2745-2753. doi: 10.5455/OVJ.2024.v14.i11.3. Epub 2024 Nov 30. PMID: 39737049; PMCID: PMC11682760.

b) International conferences:
1
Field diagnosis of camel diseases

c) National conferences:
1
the 8th Scientific Day on Transboundary Animal Diseases

d) Other (Provide website address or link to appropriate information):

11. What have you done in the past year to advance your area of focus, e.g. updated technology?
The development of a data collection application on Kobotoolbox for the vaccination campaign data in a pilot area in the north-west of Tunisia.

12. Additional comments regarding your report: