



This project is part of the PRIMA programme supported by the European Union.

PRESS RELEASE

Bluetongue: The PRIMA Blue-Med Project's response to a growing crisis

- In 2024, Europe is facing a severe outbreak of Bluetongue (BT), a disease that affects both domestic and wild ruminants.
- European countries are on high alert. Hundreds of articles have been published reporting the crisis caused by new strains of the BT virus, leading to thousands of animal deaths and significant economic losses.
- There is an urgent need for preventive measures and support for the agricultural sector.
- The European Blue-Med project, funded by the Partnership for Research and Innovation in the Mediterranean Area (PRIMA), brings together research teams from Tunisia, Italy, and France to support scientific research.

January, 2025 | The year just concluded showed several Bluetongue outbreaks have hit ruminants across the Mediterranean region and in Europe. This disease, characterized by recurrent waves, has caused widespread concern among farmers, veterinarians, and health authorities.

In the face of this persistent threat, a European project has brought together research teams, using science to support an agricultural sector already weakened by the challenges of climate change. The Blue-Med project, funded by PRIMA (Partnership for Research and Innovation in the Mediterranean Area), adopts a cross-border approach to combat the spread of this virus, which now affects the entire Mediterranean basin.

A crisis with a serious economic impact

According to the World Organization for Animal Health (WOAH): "*Bluetongue is a viral, non-contagious disease that affects domestic and wild ruminants (mainly sheep but also cattle and camels).*"

This viral disease leads to productivity losses and massive deaths, especially among sheep. The WOAH reports that "*mortality ranges from 2 to 30%, but can go as high as 70%, and gets to 100% with sensitive sheep.*"



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The virus is transmitted mainly through the bite of insects (belonging to certain species of the *Culicoides* genus), which become infected by feeding on the blood of infected animals and have the peculiarity that can be transported over long distance by the wind. As the virus knows no borders, its rapid spread demands a swift and coordinated international response.

Blue-Med: A cross-border and collaborative response

As early as 2018, researchers from the Mediterranean region, who have been collaborating on BTV and other pathogens for years, recognized the urgency of addressing the ongoing evolution of this disease.

In response to PRIMA's call, they submitted a project proposal that was selected and funded, leading to the launch of the Blue-Med project in 2019.

The Blue-Med project, coordinated by Dr. Giovanni Savini from the Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise (IZSAM), brings together researchers and experts from Italy, Tunisia, and France to establish effective surveillance and control of Bluetongue in some countries of the Mediterranean basin. This partnership includes the National School of Veterinary Medicine of Sidi Thabet in Tunisia and the French Agency for Food, Environmental and Occupational Health & Safety (ANSES).

The goal is clear: to improve early detection of the virus, better understand the mechanisms of its spread from country to country, and strengthen prevention measures throughout the Mediterranean region.

Trusting Science: better surveillance for a better response

As Dr. Giovanni Savini explains, "*The key to fighting Bluetongue is surveillance. Strengthening surveillance allows us to adapt our strategies and take effective measures, particularly in terms of vaccination and control of animal movements.*"

A major priority, the researchers in the Blue-Med project began by harmonizing diagnostic methods across partner countries. By ensuring that all laboratories use the same techniques and have the same performance, Blue-Med created a standardized approach for detecting and identifying pathogens.

"*This has allowed Tunisia to enhance its detection capabilities, ensuring quick identification of the virus and a better response to outbreaks,*" continues Savini.

The importance of an international surveillance network

Bluetongue surveillance relies on the ability to detect pathogens and analyze their genetic sequences. This capability enables the identification of the agent responsible for the outbreaks and helps trace their origin. By comparing the genome sequence strains, researchers can trace where they come from, enabling them to track the pathogen/disease's evolution and eventually anticipate its/their spread.



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To accelerate and enhance this process, international surveillance networks play a crucial role, providing access to epidemiological data and genetic sequences from multiple countries on a larger scale. This enables the quick detection and identification of a rapidly spreading pathogen, allowing us to trace its possible origin and enhance our response strategies.

One of the key takeaways from the project is the importance of international cooperation. Fabrice Dentressangle, Project Officer for the PRIMA program, emphasizes the crucial role of these networks, stating that *"An international animal health network in the Mediterranean is vital for safeguarding both animal and human well-being. By fostering prevention, strengthening surveillance, and ensuring timely alerts, such a network enables swift action against emerging threats."*

He also add, *"Blue Med has strengthened this network, facilitating identification tools for this disease, and relying on local actors, such as farmers and vets, who are the first to warn the society through this network"*. The success of the Blue-Med project can serve as a model for future initiatives. By creating networks of researchers and practitioners in the field and encouraging data sharing and cooperation, Blue-Med helps accelerate the response to Bluetongue and other emerging diseases.

Significant Results

Among the major successes of the project, the creation of an early warning system and the harmonization of cross-border control efforts stand out. The project also helped better understand the temporal and geographical links between the disease outbreaks in North Africa and Southern Europe, identifying key factors driving the spread of the virus and its vectors.

Dr. Giovanni adds, *"Bluetongue virus mainly uses two corridors to enter Europe: one from the south (Northern African countries and Southern Europe), and the other from the east (Middle East, Turkey, Greece, the Balkans). Today, we are facing a new incursion from the Netherlands, and we don't know where this strain is coming from."* This highlights the importance of continued research and the ability to sequence and compare the genome of different strains.

A Promising Vaccine against EHDV-8, the Epizootic Hemorrhagic Disease Virus

Among the tangible results of the project, a major breakthrough concerns the development of a prototype inactivated vaccine against EHDV-8 (Epizootic Hemorrhagic Disease virus, serotype 8), a virus closely related to Bluetongue. Trials conducted on Holstein-Friesian calves showed that the vaccine prevents clinical symptoms and reduces the spread of the virus within herds, providing a new tool in the fight against the disease.

Strengthened Collaboration for the Future

The Blue-Med project is part of a broader dynamic of cooperation between researchers and research institutions, notably within the REMESA and ERFAN networks. These initiatives, which



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involve African, Middle East and European partners, pave the way for strengthened collaborations to better understand and control vector-borne diseases in the region.

Dr. Savini warns, *“Bluetongue is a constantly evolving virus, and we must remain vigilant. Cooperation, sharing data and alignment of methods between neighboring countries are essential to anticipate new waves of the epidemic.”*

Dr. Octavi Quintana, PRIMA Director, concludes, *“each PRIMA project is a crucial part of a broader effort to tackle the Mediterranean’s most pressing challenges, and at PRIMA we’re proud to count Blue-Med, along with 237 other PRIMA projects, being part of a network of 21,000 beneficiaries and 2,300 research teams across the Mediterranean, all driven by collaboration at the core of their work.”*

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About the **Partnership for Research and Innovation in the Mediterranean Area (PRIMA)**:

PRIMA is the most ambitious Research and Innovation program to be undertaken in the frame of Euro-Mediterranean cooperation. With an overall budget of 700 million €, PRIMA is a ten-year Public-Public Partnership (2018-2028), set up under Horizon 2020 (Horizon Europe for the period 2025-2028).

PRIMA's vision is to foster joint research and innovation approaches among Mediterranean countries to improve water availability, sustainable agriculture, and food production in a region heavily distressed by climate change, urbanisation, and population growth.

20 countries participate: 12 from the EU (Bulgaria, Croatia, Cyprus, France, Germany, Greece, Italy, Luxembourg, Malta, Portugal, Slovenia, Spain) and 8 are non EU-countries (Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Tunisia and Turkey). PRIMA implements its Programme mainly through calls for proposals and on a coordinated and well-structured set of activities, procedures, decision-making processes, and operations at national and supra-national levels.

About the Blue-Med project:

The BLUE-MED project is part of the PRIMA program supported by the European Union. With a total budget of € 854.000, the project was implemented in three countries: Italy, France, and Tunisia. It was coordinated by Dr. Giovanni Savini from the Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise (IZSAM). The other two partners are ANSES (French Agency for Food, Environmental and Occupational Health Safety) in France and ENMV (National School of Veterinary Medicine of Sidi Thabet) at the University of Manouba in Tunisia. The project was completed in 2024.

In order to establish a comprehensive and flexible operational model capable, on the one hand, of quickly and accurately detecting new incursions or the circulation of Bluetongue virus (BTV) strains and, on the other hand, of preventing and/or controlling their spread in the Mediterranean region, the research project studied the genetic and environmental factors influencing the virus's spread and transmission. This helped improve the understanding of the incidence and control of various BTV strains in the affected regions. Additionally, it contributed to refining existing diagnostic systems and exploring the foundations for more effective control strategies.

More info: bluemed-prima.eu

About the Funding agencies:

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