“Arimnet project”
on ticks and transmitted diseases

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JPC REMESA
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ARIMNet 2 Call 2014-15

- ERA-NET funded by the European Commission´s 7th Framework Programme and member countries

Scientific Scope of this Call

A. Developing sustainable production in the context of increasing ecological and climatic stresses
B. Food chain from production to consumption: enhancing the advantages of Mediterranean Agriculture and Food
C. Sustainable management of landscape and resources used by agriculture
A. Developing sustainable production in the context of increasing ecological and climatic stresses

A. 3. Common Mediterranean challenges in animal and plant health

The development of endemic or emerging animal and plant diseases is a major problem for both the productivity and human health all around the Mediterranean. The Mediterranean is a hotspot not just for biodiversity but also for the emergence of animal and plant diseases. The effects of climate change favor the persistence of pandemic animal diseases, the resurgence of epidemics and the emergence of new pathogens. This issue of animal and plant health must be addressed taking into account different levels of integration: from the ecology and biology of pathogens and vectors, to the issues of sanitary monitoring, health control and socioeconomics both at the farm and regional level.
Funding scheme

- Research consortium: only research institutions can be funded
- Priority topics identified by country
- Each country funds its own institution

Financial contribution of REMESA countries to animal health projects

- Expected total funding for a project around 400 k€

<table>
<thead>
<tr>
<th>Country</th>
<th>Funding Partner</th>
<th>Financial contribution up to (in k€)</th>
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<tbody>
<tr>
<td>Egypt</td>
<td>ASRT</td>
<td>600</td>
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<tr>
<td>France</td>
<td>ANR</td>
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<td>Greece</td>
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<td>Italy</td>
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<tr>
<td>Tunisia</td>
<td>IRESA</td>
<td>300</td>
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Inter-disciplinary approach for a better integrated control of tick populations and tick-borne diseases of livestock in the Mediterranean region

- Research on tick and tick borne diseases are neglected in comparison to other vector borne diseases in the Mediterranean

- Consortium will gather Northern and Southern Mediterranean institutions.

- The bio-ecological, epidemiological and socio-economic dimensions would be represented in the project.

- Beyond the scientific goals, this project would be a further opportunity to federate animal-health research on vector borne diseases in this region, and reinforce the interaction of research activities with REMESA network.
Confirmed partners of the consortium

<table>
<thead>
<tr>
<th>Pays</th>
<th>Institut de recherche</th>
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<tbody>
<tr>
<td>France</td>
<td>CIRAD (CMAEE et AGIRs) (T Lefrançois, R Lancelot, F Stachurski, L Vial, F Roger) INRA SAD Corte (F Casabianca, F Charrier)</td>
</tr>
<tr>
<td>Italie</td>
<td>Toscana Universiy (M Selmi) IZS Sardaigne</td>
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<td>Maroc</td>
<td>IAV Hassan II (A Rhalem, O Fassi Fihri)</td>
</tr>
<tr>
<td>Tunisie</td>
<td>ENMV/IRESA (M Gharbi, M Aziz Dargouth)</td>
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</tbody>
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Main topics / Work Packages

- WP1: Mapping risk associated with tick and transmitted diseases
- WP2: Modelling of Hyalomma and disease transmission to test integrated control strategies in a context of breeding changes
- WP3: Socio economic studies of tick and tick transmitted diseases
- WP4: Integration of tick knowledge within regional activities and regional network
WP1: Mapping of ticks and tick transmitted diseases and characterization of the risk in the Mediterranean region (IAV, ENMV, CIRAD, INRA, IZS, Univ Toscana)

- Identification and mapping of tick species distribution (Hyalomma, ornithodores, Rhipicephalus) and spreading in the different countries in domestic, wild mammals and migratory birds
- Tick identification in both wild and domestic animals as indicators of wild-domestic animals contacts, analysis taking into account land use, pathogen presence, animal mobility
- Mapping of the sanitary risk at the territory level and characterization of environmental and sociotechnic factors explaining the distribution and the risk
- Transmission dynamics of babesiosis, theleriosis and anaplasmosis (Hyalomma and Rhipicephales)
WP2: Modelling of Hyalomma and disease transmission to test integrated control strategies in a context of breeding changes (ENMV, CIRAD)

- Modelling of Hyalomma scupense in the environmental context of Tunisia: collection of data, experimental testing of abiotic factors…
- Test different control strategies in Tunisia (acaricides taking into account acaricide resistance, manual removal, management practice)
- Extension of the model to Hyalomma marginatum
- Inclusion of the model into a general model of infection (taking into account infestation level, to test the impact of vaccination against Tannulata
- Model validation with field observations
- Use of the model to estimate changes that could be induced by change in breeding systems and breeds
WP3: Socio economic studies of tick and tick transmitted diseases (IAV, ENMV, CIRAD, INRA)

- Evaluation of the tick problem within the global animal health burden
- Financial impact of T annulata infections in different level of endemic stabilities
- Multicriteria evaluation of the sanitary, economic and social impact on at the farm, management of tick constraint at the farm level
- Impact of tick on public health
- Sociological analysis of theleriosis: perception by farmers and acceptability of control measures, communication based on perception study
- Collective action against tick and transmitted diseases: from the farm to the territory: Is their any organisation of the management of tick and tick transmitted disease constraint at the territory level?, What are the determinents of this organisation or non organisation and of the action or absence of actions
WP4: Integration of tick knowledge within regional activities and regional network (IAV, ENMV, CIRAD, INRA, IZS, Univ Toscana)

- Regional approach of vector borne diseases: link with other research projects and regional database: toward a shared information portal

- Interaction between research and surveillance through REMESA network
What are the next steps?

- Finalization of the pre-proposal < 1\textsuperscript{st} December 2014

- Support from the ministry of agriculture and/or research to identify animal health as a priority scope for the Mediterranean countries

- Submission of the full project if pre-proposal accepted < 11\textsuperscript{th} May 2015
Merci de votre attention