

**COST ACTION BETTER (CA20103) – AN INTERDISCIPLINARY RESEARCH NETWORK IN
BIOSECURITY IN DIFFERENT ANIMAL PRODUCTION SYSTEMS**

**COST AKCIJA BETTER (CA20103) – INTERDISCIPLINARNA MREŽA ISTRAŽIVAČA U
OBLASTI BIOSIGURNOST U RAZLIČITIM PROIZVODNIM SISTEMIMA ŽIVOTINJA**

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ABSTRACT

Today, connecting people, researchers, research topics, ideas and projects from different countries all around the Europe is more important than ever. One of the greatest examples how research ideas can connect and integrate new research ideas is European Cooperation in Science and Technology (COST), a funding agency for research and innovation networks. The main activity is to help connect research initiatives across Europe and enable scientists to grow their ideas by sharing them with their peers. This is an interdisciplinary research network that brings researchers and innovators together to investigate a topic of their choice for 4 years. COST Actions are typically made up of researchers from academia, SMEs, public institutions and other relevant organisations or interested parties. More important, COST Actions are open to all science and technology fields, including new and emerging fields and offering an inclusive, pan-European environment for individuals of all levels of seniority to grow their professional research networks. In order to explain what all the possibilities are opened by participating in a COST action, we will present an example of a successful ongoing COST Action CA20103: Biosecurity Enhanced Through Training Evaluation and Raising Awareness (BETTER) in which researchers all around Europe are actively involved. In today's world it is essential for research to be interconnected, interdisciplinary, collaborative and data-intensive. COST provides networking opportunities for researchers and innovators in order to strengthen Europe's capacity to address scientific, technological and societal challenges. By analysing the activities and presenting the results achieved so far in the COST Action BETTER, we want to highlight all the advantages and opportunities that are open to researchers in Europe by participating in the COST action.

Key words: COST Action BETTER, biosecurity, research network

KRAKAK SADRŽAJ

Danas je povezivanje ljudi, istraživača, istraživačkih tema, ideja i projekata iz različitih zemalja širom Evrope značajnije nego ikada. Jedan od najboljih primera kako istraživačke ideje mogu da povežu i integrišu

u nove je postojeći projekat Evropske saradnje u nauci i tehnologiji (COST), kojim upravlja agencija za finansiranje istraživačkih i inovacionih mreža. Glavna aktivnost je asistencija u povezivanju istraživačkih inicijativa širom Evrope i omogućavanje naučnicima da razvijaju svoje ideje tako što će ih podeliti i sa kolegama iz drugih država. Zapravo to je interdisciplinarna istraživačka mreža koja okuplja istraživače i inovatore da zajednički istražuju temu po svom izboru tokom 4 godine. COST Akcije obično obuhvataju učesnike, istraživače iz akademske zajednice, malih i srednjih preduzeća, javnih institucija i drugih relevantnih organizacija ili zainteresovanih strana. Što je još važnije, COST Akcije su otvorene za sve oblasti nauke i tehnologije, uključujući tu i nova polja I omogućavaju inkluzivno, panevropsko okruženje za pojedince svih nivoa radnog iskustva kako bi i sami razvili svoje profesionalne istraživačke mreže. U cilju da se prezentuju sve mogućnosti koje se otvaraju učešćem u jednoj COST akciji, u radu je analiziran primer jedne uspešne COST CA20103 koja je u toku po nazivom: Biosigurnost poboljšana kroz obuku, evaluaciju i podizanje svesti (BETTER) u koju su aktivno uključeni istraživači širom Evrope. U današnje vreme je od suštinske važnosti da istraživanja budu međusobno povezana, interdisciplinarna, kolaborativna i sa brojnim podacima. COST akcija pruža mogućnosti umrežavanja istraživačima i inovatorima u Evropi u cilju jačanja kapaciteta i mogućnostima napredka u naučnim, tehnološkim i društvenim izazovima. Analizom aktivnosti i predstavljanjem do sada postignutih rezultata u COST Action BETTER, istaknute su sve prednosti i mogućnosti koje se otvaraju istraživačima u Evropi učešćem u COST akciji.

Ključne reči: COST Akcija BETTER, biosigurnost, istraživačka mreža

INTRODUCTION TO THE EUROPEAN COOPERATION IN SCIENCE AND TECHNOLOGY ACTIONS

One of the greatest examples how research ideas can connect and integrate new research ideas is European Cooperation in Science and Technology (COST), a funding agency for research and innovation networks. The main activity is to connect research initiatives across Europe and enable scientists to grow their ideas by sharing them with their peers. A COST Action represent an interdisciplinary research network that brings researchers and innovators together to investigate a topic of their choice for 4 years. The COST projects are made up of researchers from academia, small and medium-sized enterprises (SMEs), public institutions and other relevant organisations or interested parties. They are open to all science and technology fields, offering an inclusive and pan-European environment for individuals of all levels of seniority to grow their professional research networks and boost their careers. The COST Actions help to advance knowledge and strengthen the research and development sector, by creating networking opportunities for researchers to meet and discuss ideas, addressing the complex problems in a targeted way, across a large geographical area. All information's how to apply can be found at the website of European Cooperation in Science and Technology (1).

In order to present all the possibilities that are opened by participating in a COST action, the ongoing COST action CA20103: Biosecurity Enhanced Through Training Evaluation and Raising Awareness (BETTER) will be shortly presented in which participants, researchers all around Europe are actively involved (2).

BACKGROUND OF THE COST ACTION BETTER

Nowadays, health and welfare, safety and sustainability are crucial elements for ensuring the future of livestock production. Biosecurity aims to prevent the introduction and spread of pathogens within and between farms and, consequently, results in better welfare, increased food safety and better sustainability. In addition, biosecurity measures act as a barrier against the periodic emergence of transboundary diseases. The present Action is supported by the growing interest for biosecurity but also based on the increased number of research projects on these aspects. The most importantly, better communication and coordination mechanism is needed between the different groups in order to give a common voice to those in the field (i.e., farmers, veterinarians, traders, decision makers and the general population) (3,4).

DESCRIPTION OF THE COST ACTION BETTER

Biosecurity is of paramount importance to prevent the introduction and spread of pathogens and, consequently, to preserve the health of farmed animals. Healthier animals result in better animal welfare, better sustainability of animal production systems and less antimicrobial use. Despite these benefits, biosecurity is limited by different factors: lack of knowledge on ways for improvement; shortage of adequate ways to enhance communication; diversity of methodologies to assess and measure the implementation of biosecurity measures and their cost-effectiveness and a low number of trained professionals (2). To approach these challenges, the Action will evaluate how biosecurity is currently used and will use participative approaches to understand motivators and barriers for biosecurity implementation. Knowledge generated through them will act as the baseline upon which to develop adequate communication and training on biosecurity. The Action will also perform a comparison of existing methods used to evaluate biosecurity. Exploiting these tools will promote the development of tailored options in farms based on the evaluation of their risks, on the feasibility of selected biosecurity measures and on their economic benefits. Moreover, the Action will identify training needs through the evaluation of existing training materials and will develop new courses, increasing therefore the number of trained professionals. Finally, the Action will recommend priority research areas for future biosecurity improvement in animal production systems (2,3,4).

OBJECTIVES AND THE STRUCTURE OF THE COST ACTION BETTER

The overall aim of the Action is to reduce the risk of infectious disease introduction and spread by improving the implementation of biosecurity measures in animal production systems. The COST Action BETTER is structured in four working groups (WG): WG1-Mapping biosecurity measures applied on farms and transport across Europe; WG2-Scaling-up the knowledge and experience of stakeholders and of the general public; WG3-Methods for evaluation of biosecurity and benefits

of its implementation; WG4-Training and dissemination (2).

The first working group (WG1) is addressing how biosecurity measures are applied in Europe and neighbouring countries, and will identify ways for improvement, especially in production systems where there is a lower level of implementation or in settings where biosecurity is more challenging to carry out. This working group will address the challenge of understanding how biosecurity measures are applied in the different cattle, pig and poultry production systems across Europe in order to identify existing knowledge gaps and ways for improvement. The first objective of this working group is to map the implementation of biosecurity measures in livestock holdings and in animal transport. In order to achieve tasks, in the first year of COST Action in WG1 three subgroups had been established and they developed a template to map biosecurity practices across Europe in each species (i.e., cattle, pigs, and poultry production). A data collection tool has been created to capture biosecurity practices applied in animal production systems across Europe. The created database is related to biosecurity measures (mandatory by law and by other than law) and their implementation rate. Today, data collection on biosecurity practices applied in animal production systems has been completed in the previous period and collected information are analysed (5). Moreover, in the second year of the project a new subgroup in small ruminants has been created. The current WG1 activity includes a new survey which intends to capture the different existing definitions about small farms and which biosecurity measures are mandatory. The other survey will target field vets and animal health technicians, to identify attitude towards biosecurity in small farms animal production and try to identify the areas that they see as feasible to improve.

The second working group (WG2) is addressing the challenge of the Action which is to scale-up the knowledge and experience of end-users of biosecurity and of the general society. This is highly relevant as any training or communication strategies for end-users should be based not only on science but also on the understanding of why stakeholders behave the way they do. Currently, in this working group collected data from the survey for consumers to assess their perception of biosecurity and the role they could play in disease spread has been analysed.

Also, data extraction on the literature reviews on the social, economic, and psychological factors affecting the decision-making to implement biosecurity measures by farmers, veterinarians and traders is progressing. Participative actions to evaluate how biosecurity is being communicated have been initiated (2).

The third working group (WG3) in COST Action is focusing on identifying the existing methods used to evaluate biosecurity. At present, methodologies are diverse and have not been compared comprehensively. Such methods can be useful as educational tools and for developing skills in risk-based prioritisation as well as to provide quantitative goals and benchmarks which can be used to position the farm with respect to others. The challenge of WG3 will be to address the heterogeneity of the existing methods to evaluate and promote biosecurity (6). The WG3 has developed an online survey to identify and describe methods currently used in different countries to assess biosecurity (7). Moreover, WG3 has developed guidelines to conduct a literature review on methods to assess biosecurity and to demonstrate the benefits of implementing biosecurity. At the moment, data collected through the online survey about methods currently used in different countries to assess biosecurity has been analysed. The next task related to evaluate the effectiveness of improvement biosecurity programs has already begun.

The fourth working group (WG4) aims to increase the number of professionals, such as veterinarians and farmers, trained in biosecurity and to develop guidelines and good practices for evidence-based effective communicative strategies for different stakeholders. This working group will address the challenge of increasing the number of professionals trained in biosecurity and the development of communicative strategies with a high impact amongst the different stakeholders. The survey on the identification of training needs on biosecurity among different stakeholders has been done and data analysed (8). Participative actions to evaluate training needs are under development.

Common task for all WGs is to create a sustainable network for the promotion of research, education and application of biosecurity measures in European countries. Through the different online and face-to-face meetings the network is getting engaged and is being consolidated. Also important task for all WGs

is to improve the communication and information sources related to biosecurity aimed at veterinarians, farm advisors, farmers' associations and official authorities. Data collected through the project (i.e., biosecurity measures that are being implemented, how they are implemented, etc.) will be made available to veterinarians, farm advisors, etc., once data collection and analysis has been finished.

THE TEAM OF THE COST ACTION BETTER

The present Action involves a multidisciplinary team (e.g., economists, epidemiologists, evidence synthesis experts, infectious diseases and animal production experts, Sociologists, psychologists, and communication experts, among others) encompassing the expertise needed to solve the identified challenges. The number of people involved in the Action together with their different backgrounds and the wide geographic distribution provides an excellent opportunity to achieve the objectives of the Action as they will enable the contact with stakeholders across an extensive area. At present (March 2024), the Action is composed of 347 participants from 47 different countries including non-EU countries (e.g. Australia, Argentina, Canada and New Zealand). In addition, stakeholders from government bodies, the industry or international organizations such as FAO and OIE have also joined the Action.

ACTIVITIES AND MEETINGS OF THE COST ACTION BETTER

The COST Action BETTER is organizing the several activities that are running parallel to the tasks planned in the working groups. First, COST Action BETTER organise two face-to-face WGs meetings every year in order to ensure networking and facilitate work progress of the different WGs. The different WGs had some time to discuss their current activities. During these meetings, also specific workshops are organised in different working groups for in-depth discussion of some topics. Additionally, all participants can submit the abstract and have the flash talks and/or present their work in poster session (2). Indeed, in all previous meetings, posters were displayed based on participants contributions and some number of them were selected and presented as a flash talk. In between face-to-face meetings, the WG leaders are

organising on-line meetings for all registered participants in different WGs.

Management committee (MC) meetings (with the exception of the first kick-off meeting), are organized on-line after COST Action meetings, in order to optimize resources. Beside WGs and MC meetings, the members of the Core group have on-line meetings monthly in order to monitor progress of the different planned activities and to promote new ideas and activities. They are also in charge of organizing the Short-Term Scientific Missions (STSM/VM), the different Action WG Meetings and conferences. Short-Term Scientific Missions are organized based on the working needs of each of the working groups. STSM consists of a visit to a host organization located in a different country than the country of affiliation by a researcher or innovator to complete a specific work or task in a determined time. VM consists of collaboration in a virtual setting among researchers or innovators (they work from home country), to achieve determined tasks, exchange knowledge, learn new techniques, etc. Both aim to strength the existing networks and foster collaborations among institutions. COST Action BETTER Open Calls also include Conference dissemination grants which include financial support to Action participant for their participation in high-level conferences. Moreover, inclusiveness target country (ITC) Conference Grants consist of financial support for Young Researchers and Innovators (<40 years) affiliated in an Inclusiveness Target Country / Near Neighbour Country for their participation in high-level conferences (2). All the working groups are participating in the organization of different training courses, one in each region of Europe (i.e., west and east). Therefore, the Action aims to teach at least two biosecurity courses at the end of the Action. In the final year of the COST Action the Final workshop is planned and all WGs will participate to identify main biosecurity gaps and brainstorming on ways for improvement.

A webinar series has been initiated to promote communication and information sources (9). In the BETTER webpage a repository section was created in which presentations from the different meetings are stored, which are accessible to any interested person (2).

THE PROGRESS OF COST ACTION BETTER DURING ITS FIRST TWO YEARS

In the first two years COST Action BETTER have been able to characterize how biosecurity is being applied in farms in different countries and which measures are compulsory by law and which are not. The collected data will contribute to identify which are the main gaps and areas in which more research is needed. Moreover, the perception of the general public in the role that they can have in disease spread is being evaluated and different barriers and motivators are being compiled. Indeed, 88 different methods used to evaluate biosecurity in different countries have been identified and are being characterized. The findings from this study will aid in identifying deficiencies in biosecurity assessment methods for certain animal species, highlighting both commonalities and disparities among these methods. Moreover, countries could leverage these results to initiate their own evaluations or to re-evaluate their existing methodologies. Moreover, exiting training and research projects in biosecurity are being compiled, which will also serve as the basis to identify training gaps and recommend further trainings on biosecurity.

CONCLUSIONS

Currently the COST Action BETTER is approaching to the end of the third grant period, and have been able to achieve most of goals planned for this period. The visibility of the BETTER has significantly increased through the participation in several conferences and relevant meetings across Europe and we are beginning to prepare the first drafts of several papers.

In today's world it is essential for research to be interconnected, interdisciplinary, collaborative and data-intensive. COST provides networking opportunities for researchers and innovators in order to strengthen Europe's capacity to address scientific, technological and societal challenges (1). By analysing the activities and presenting the results achieved so far in the COST Action BETTER, we want to highlight all the advantages and opportunities that are open to researchers in Europe by participating in the COST action.

Acknowledgement: This paper is based upon work from COST Action 20103 Biosecurity Enhanced Through Training Evaluation and Raising Awareness (BETTER), supported by COST (European Cooperation in Science and Technology).

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