BUSINESS FINLAND

Horizon 2020 Webinar Sc2 Calls In 2020 15.8.2019

Structure of € 77Bn. Horizon 2020

	I Excellent Science	II Industrial Leadership		III Societal Challenges
1. 2. 3.	European Research Council (ERC): frontier research Future and Emerging Technologies (FET). a) Open b) Proactive c) Flagships Marie Skłodowska-Curie (MSCA) – actions: training, career development	 Leadership in Enabling and Industrial Technologies 1.1. ICT 1.2. nanotechnology 1.3. materials 1.4. biotechnology 1.5. manufacturing and processing 1.6. space Risk finance: loans & equity funding 	1. H 2. F 3. S 4. S 5. C 6. E	Health, demographic change and vellbeing Food security, sustainable agriculture and forestry, marine, maritime and inland water esearch and bioeconomy Secure, clean and efficient energy Smart, green and integrtaed ransport Climate action, resource efficiency and raw materials Europe in a changing world: nclusive, innovative and reflective
	and mobility for researchers	3. Innovation in SMEs		societies
4.	Research Infrastructures	20% of the budget or pillars II + III to SMEs - SME Instrument(1/3) - Collaborative projects (2/3)	7. § f	Secure societies – protecting reedom and security of Europe and its citizens
Also: European institute of innovation and technology, Science with and for society, Spreading excellence and widening participation				
IV Joint Research Center JRC, excl. nuclear				
Nuclear research: EURATOM				



TECHNOLOGY VS CALL TYPES IN A NUTSHELL





Technology Readiness Levels [Academic + Applied Research]

TRL 1 – Basic principles observed
TRL 2 – Technology concept formulated
TRL 3 – Experimental proof of concept

<!-- Companies' R&D starts from here --> TRL 4 – Technology validated in lab

TRL 5 – Technology validated in relevant environment



Technology Readiness Levels [Applied + Industrial R&D&I]

TRL 6 – Technology demonstrated in relevant environment (~"MVP")

- TRL 7 System prototype demonstration in operational environment (~"Pilot")
- TRL 8 System complete and qualified
- <!-- Companies' R&D ends here -->

TRL 9 – Actual system proven in operational environment

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RIA/IA Call Types & Funding (=Where The Money Is)

>Top-down | Commercial Time Horizon ~3-5 yr

- * 70 % grant for profit (100 % for non-profit)
- * Innovation Action (IA): TRL ~6-8 (~BF Co-Innovation)

>Top-down | Commercial Time Horizon ~5-8 yr

- * 100 % grant for profit / non-profit
- * Research and Innovation Action (RIA): TRL ~4-6 (~AoF+VTT)

SC2 CALISTN 2020

Sustainable Food security (14 topics – € 173 Mio)
Blue Growth (3 topics – € 52 Mio)
Rural Renaissance (7 topics – € 88 Mio)
Food and Natural Resources (18 topics – 208,7 Mio)



H2020 SC2 Work Programme 2018-2020

Focus on 5 priorities:

- Addressing climate change and resilience on land and sea
- Making the transition towards a circular bioeconomy
- Fostering functional ecosystems, sustainable food systems, healthy lifestyles
- Boosting major innovations on land and sea new products, value chains and markets
- Developing smart, connected territories and value chains in rural and coastal areas.



Call - Sustainable Food Security

- Horizon 2020's main contribution to research and innovation in relation to Food and Nutrition Security in Europe and beyond.
- Its commitment to **sustainability** implies that particular attention is given to the interfaces between the economic, environmental and social dimensions of food production (SDGs 2, 11, 12, 13 & 15)
- It aims to
 - · deliver diverse and healthy food from land and sea
 - increase resource efficiency and environmental performance of food systems from primary production to consumers
 - understand the impact of climate change on agriculture, resources, food quality and identify options to manage its effects
 - taking into account main drivers such as inputs and consumption reduce greenhouse gas emissions and emissions of air pollutants from land use and food production patterns
- The results of funded activities will contribute to creating the conditions for dynamic and innovative farming and food sectors that manage to turn high quality products and high environmental standards into a competitive advantage.
- The results will help to ensure food production under future, increasingly uncertain environmental conditions and move towards resource-smart, climate-smart and "eco-healthy" production and consumption.

SFS-01-2018-2019-2020: Biodiversity in action: across farmland and the value chain/ From agrobiodiversity to dynamic value chains (C topic) RIA | EUR 18/6 M | Opening 15 OCT 2019 | DL 22 JAN & 8 SEPT 2020

<u>Specific Challenge</u>: Agricultural biodiversity is understood to comprise all components of biological diversity that (i) are of relevance for food and agriculture and all components of biological diversity that (ii) constitute agroecosystems. It is the result of highly dynamic interactions between the environment, genetic resources, agricultural practices and historical land management. The various dimensions of agricultural biodiversity play a significant role in conferring stability, resilience and adaptability to farming systems. Below ground biodiversity for example plays a major role in soil nutrient and water cycling, nutrient uptake by plants and in the control of plant diseases. Genetic diversity within species is at the origin of plant development, adaptation to different environments (including climate) and a wide range of properties which cater for diverse needs. The native biodiversity on and around farms is associated with the provision of important ecosystem services beyond farm level.

Activities shall release the value of so far <u>underutilised and often genetically diverse crops</u>, (including landraces and varieties) and promote their broader use in breeding, farming and in food/non-food value chains. They will improve the performance of the selected crop(s) in relation to specific characteristics (e.g. agronomic such as adaptability to climate related abiotic stresses or quality related traits) and address the corresponding needs for farm and land management. Activities will feed into the development of value chains, which provide opportunities to **diversify farm** activities and income as well as meet consumer demands for diversified products and/or for products with a local/regional identity. This will include developing and testing marketing channels with enhanced producer-consumer links.

SFS-02-2020: Healthy terrestrial livestock microbial ecosystems for sustainable production RIA | EUR 20/10 M | Opening 15 OCT 2019 | DL 22 JAN & 8 SEPT 2020

<u>Specific Challenge:</u> Research is increasingly paying attention to the importance of **interactions between the animal host** and microbiota and their effects on the production efficiency, and the health and welfare of animals. These interactions are highly dynamic and influenced not only by genetics, but also by external factors such as environment, nutrition/feeding and management. Recent developments in omics science and technologies have opened new avenues for understanding not only the biology and genetics of animals, but also the ecosystems in which they function and those which they harbour, i.e. microbiomes. This is particularly relevant for micro-organisms that are currently non-culturable. **Research on the interplay between the animals and their microbial ecosystems is needed to contribute to the improvement of sustainable livestock production.**

<u>Scope</u>: Activities shall address relevant microbial ecosystems of terrestrial livestock, and their effects on the production, health and welfare of animals. They should look in a balanced way at the characterisation of microbial ecosystems (including microbial communities and microbe-derived metabolites), assessing variability within and between breeds in relation to variability of production systems and diet; at microbial behaviour (e.g. interactions between microbiota, evolution with age of animals, transmission); at microbial functions and interactions with host, environment and management practices, including feeding where relevant; and at possible ways in which those ecosystems can be managed, including socioeconomic aspects, in order to reduce environmental impact, improve production and its quality, and/or health in particular during challenging periods such as early life, weaning or after disturbances...

 gut microbiome of pigs and poultry; one or more species and one or more microbial ecosystems; anti-microbial resistance; microbiome cluster

SFS-04-2019-2020: Integrated health approaches and alternatives to pesticide use/ Alternative to contentious pesticides (B) IA | EUR 20/5 M | Opening 15 OCT 2019 | DL 22 JAN 2020

Specific Challenge: Plant protection and biocidal products (both covered under the term "pesticides") are used in agriculture to secure yield and ensure food and feed safety across agricultural production and the agri-food chain. At the same time, pesticides may have effects on the environment, non-target organisms, animal and human health. In the EU they are regulated and assessed for pre-market approval but tools and methods need to be further developed to better understand the overall risks and impacts associated with their individual and combined use and possible side effects. Member States and EU policies seek to reduce reliance on pesticides by designing and implementing more integrated approaches to the use of pesticides while at the same time safeguarding competitiveness.

Activities will foster the development and testing of tools, approaches, strategies and/or products to reduce the risks associated with the use of contentious plant protection products and/or biocidal products in conventional and/or organic farming systems and/or the agri-food chain. They will seek for more sustainable alternatives to contentious (or, as appropriate, active substances used in) plant protection product(s) for integrated pest, disease and/or weed management in agriculture and/or biocidal product(s) for preventing and controlling harmful organisms occurring in facilities related to agricultural production and the agri-food chain. Activities should address the development, testing and demonstration of novel, more durable and sustainable approaches, products, strategies and/or tools for their application within a systems approach and cultural practices.

• MA, social and economic sciences, gender aspects

SFS-05-2018-2019-2020: New and emerging risks to plant health RIA | EUR 7/7 M | Opening 15 OCT 2019 | DL 22 JAN & 8 SEPT 2020

Specific Challenge: Trade and the movement of goods and people have facilitated the introduction, spread and establishment of plant pests and diseases. While new pests and diseases are likely to arise, existing ones might become more severe because of intensification, climatic variations and changes in agricultural and forest management practices. They can have a significant impact on agricultural and forest productivity, environment and economics. Appropriate and rapid responses from decision-makers need to be based on scientific knowledge which addresses pest and disease management in a comprehensive manner.

<u>Scope</u>: Proposals will target one or more new or emerging plants pests (the term includes weeds) and/or diseases (regulated or non-regulated, introduced or native) that are causing, or likely to cause, significant (socio)economic and/or environmental losses to European agriculture and/or forestry. The choice of target pest and/or disease will consider the potential threat in terms of development and spread, its potential exacerbation under climate change as well as the potential impact on agricultural production, forestry, trade and the wider environment. Proposals will increase knowledge of the biology, pathways of entry and spread of pest(s)/disease(s) and clarify the dependencies on abiotic factors. They will improve methods and strategies for early detection, prevention and control as well as enlarge the range of tools for integrated, sustainable and effective pest/disease management. International cooperation with countries affected or threatened by the same pest(s)/disease(s) including a range of actors to ensure that knowledge and needs from various sectors such as research, plant health services and the farming/forestry sector are brought together. MA

SFS-06-2018-2020: Stepping up integrated pest management/European-wide demonstration farm network (B) CSA | EUR 6/6 M | Opening 15 OCT 2019 | DL 22 JAN 2020

Specific Challenge: There is a need to develop and promote more cost-effective and sustainable Integrated Pest Management (IPM) options which are based on a holistic view of agro-ecosystems. IPM is part of EU legislation promoting the sustainable use of plant protection products (SUD32). The various IPM solutions being developed across Europe all differ depending on the crops, the available climate monitoring systems, the underlying knowledge of pest populations, on pedo-climatic conditions and on the agro-ecological environment. IPM decision support systems and models developed as part of national or regional research projects usually only deal with limited aspects of crop production and are validated in regional circumstances. As a consequence, it often remains unclear what the value of such a model/system may be in other parts of Europe and what the impact of climate change could be on the validity of the model. Sharing IPM decision supporting tools at European level therefore has great potential for synergies...

Activities shall fuel a European-wide network of IPM demonstration farms, which make a direct link between research and practical farm management, thereby facilitating IPM uptake and knowledge-sharing among advisors and farmers. The network should consist of normal farms where farmers can learn in a peer-to-peer mode from their colleagues. Practical information on the farm techniques should be made readily available to all, using open source and open data management to enable wide and long-term sharing, possibly according to specific typologies and areas...

SFS-10-2020: Epidemiology of non-EU-regulated contagious animal diseases: from integrated data collection to prioritization

RIA | EUR 10/10 M | Opening 15 OCT 2019 | DL 22 JAN & 8 SEP 2020

<u>Specific Challenge</u>: The increasing demand for animal derived food and the mounting pressure on land and oceans is expected to push further intensification and expansion of animal production in certain regions of the world. **Contagious livestock diseases impede the efficiency of animal production and lead to economic costs, poor animal welfare, and in the case of certain diseases, have an impact on trade, consumer confidence and public health.** While the impact of epizootic diseases and some other regulated contagious diseases is relatively well known due to the regulatory framework, **the situation with non-regulated contagious diseases is poorly known, even less for diseases with multiple pathogens (disease complexes)**. It is up to the private sector to deal with them. There is a need to determine the prevalence of production related diseases, the burden of these diseases and to set up a framework to facilitate monitoring of the situation and enable improvements in risk assessments and prioritisation of disease control measures throughout the animal production chain...

<u>Scope</u>: Activities will aim to harvest the knowledge inherently carried in existing data streams on contagious, non-EUregulated, animal diseases, including diseases with multiple pathogens (disease complexes) and AMR. The proposals should address at least terrestrial livestock, while including marine and freshwater aquaculture whenever relevant, and should investigate the feasibility of addressing relevant wildlife. Data from different production systems should be included. Activities will look for ways to validate, integrate and process these data, including modelling, possibly generating additional useful information inferred from existing data and identifying new data that could be integrated in data streams. They will focus on identifying and characterising relevant data on diseases (including animals, pathogen and environment, including genomic and metagenomic data), context and consequences (e.g. performance), the various components of data streams and will assess opportunities and barriers to utilising or sharing information across countries and stakeholders throughout Europe. This should improve risk identification and determination of the burden and cost of nonregulated contagious diseases and effectiveness and efficiency of control measures. Relevant geospatial information and data on animal welfare and genetics, in so far as they can be connected to animal diseases, can be included in the planned activities...MA

SFS-13-2020: Genome and epigenome enabled breeding in terrestrial livestock RIA | EUR 14/7 M | Opening 15 OCT 2019 | DL 22 JAN & 8 SEP 2020

Specific Challenge: Genetics is currently one of the important levers for efficient livestock production, not only to increase performance and productivity, but also to ensure resilience and to reduce resource use and environmental impact, to ensure health and welfare of the animals, while maintaining or improving longevity of animals and product quality. Understanding of the biological mechanisms underpinning traits, including epigenetic responses to the environment and non-genetic inheritance, remains relatively limited and underexploited, notably when several complex traits need to be targeted simultaneously, while avoiding or reducing trade-offs. In addition, improving livestock breeding programmes in both **cosmopolitan and local breeds requires** an optimal level of genetic diversity that needs to be measured and exploited. There is a need also for new knowledge and tools to open up new prospects for the measurement, conservation and exploitation of genetic diversity in farm animal species, for optimal genetic diversity in farm animal breeding programmes in both cosmopolitan and local breeds and to inform and develop strategies to provide for cost-effective in vivo conservation of endangered genetic resources.

<u>Scope</u>: The selected projects will assist in **the exploitation of existing knowledge on the genome sequence and its regulation and expression.** They will do so by providing (i) analysis of the genome and the epigenome in relation to combinations of traits (including intermediate and/or indicators) important for efficient terrestrial livestock production and (ii) tools to improve breeding schemes, both for cosmopolitan and local breeds of terrestrial livestock, striving to ensure optimal genetic and epigenetic diversity, at least within breeds. The projects will encompass development of methods, tools and models to assist both industry and policy makers as well as to respond to social challenges.

MA, interaction with relevant H2020 projects

BUSINESS FINLAND SFS-call: Environment and climate-smart food production and consumption (2 topics)

SFS-21-2020: Emerging challenges for soil management/ Emerging challenges for soil management: Soil biodiversity assessment (A); Emerging challenges for soil management: use of plastics in agriculture (B) RIA | EUR 14/7 M | Opening 15 OCT 2019 | DL 22 JAN & 8 SEP 2020

<u>Specific Challenge</u>: **Sustainable soil management** is paramount to keep soils in a good status for both agriculture and environmental needs. Over the past years, our understanding of the various threats to soil functions has increased. The recent, more in depth analysis of the importance of **soil biodiversity** for delivering important ecosystem services has identified major knowledge gaps on its role for the degradation of waste materials and for agricultural productivity. The extensive use of **plastics**, products containg plastic and other emerging contaminants in daily life has not only impacts on oceans but also on soils....

A Soil biodiversity assessment: Proposals shall cover soil biodiversity analysis, including relevant microbes and invertebrates for soil-mediated ecosystem services. Proposals shall address soil management, exploring the links between soil biodiversity, its functions and land degradation to increase economic, environmental and social wellbeing of biogeographical regions of Europe. Proposals shall cover ecosystem stressors on soil and more particularly on soil biodiversity and its potential impact on ecosystem functions.

B Use of plastics in agriculture: Proposals shall cover analysis of the use of plastic in agricultural production and its impact on soil. The particular focus of the proposals should be on the micro-plastic after harvest and its fate in the environment. The potential future impact of micro-plastic on soil biodiversity and its potential transfer to other parts of the environment and beyond should be analysed.

Eligiligy and admissibility conditions, ranking (B-call)

BUSINESS FINLAND SFS-call: Environment and climate-smart food production and consumption

LC-SFS-22-2020: Forest soils Research and Innovation Action RIA | EUR 10/10 M | Opening 15 OCT 2019 | DL 22 JAN & 8 SEP 2020

Specific Challenge: Soil continually undergoes development through physical, chemical and biological processes, which include both formation and degradation. Ultimately, it sustains primary production, which is directly related to land management practices and associated soil types. There are several challenges associated with forest soils, such as water availability and erosion, depositions of air pollutants and nitrogen, natural disturbances such as storms, pathogens and wildfires, and impacts of forest practices intensification on compacting, biodiversity and fertility of soils. Forest soils also have a key climate change mitigation dimension, as they contain more carbon than the atmosphere, and improving forest management could decrease emissions, leading to an accumulation of soil carbon stocks. However, they are also subject to the general limitations associated with the LULUCF (land use, land use-change and forestry) sector, such as non-permanence and saturation of carbon stock and the challenges associated with emissions and removals of greenhouse gases (nitrous oxide, methane and CO2). Several sustainable land management practices conducive to enhanced carbon sinks in forest soils are often put forward, such as avoidance of bare soil (including reduced deforestation), close-to-nature forestry including shelterwood cutting, promotion of nitrogen-fixing and mycorrhizal plants/symbionts, etc. However, the full range and limitation of soil-related climate change mitigation avenues are still to be fully understood, let alone put into practice.

<u>Scope</u>: Proposals shall aim at strengthening the **knowledge base of forest soil typology and (micro)biological properties including methodologies for soil analysis.** They shall address **soil functions in relation to their climate change mitigation capacity given by organic carbon stocks and associated fluxes - representative for the variety of forest ecosystems and production systems in Europe**. Specific emphasis in the proposal shall be put on several of the following research areas...

FINLAND SFS-call: Building capacities (2 topics)

SFS-28-2018-2019-2020: Genetic resources and pre-breeding communities/The GenRes-user interface and prebreeding activities (C) IA | EUR 14/7 M | Opening 15 OCT 2019 | DL 22 JAN

<u>Specific Challenge</u>: Genetic resources (GenRes) play a crucial role in agricultural activities and sustainable forest management in Europe. They hold the key to the adaptation of plants and animals to a changing and more variable climate, yet their diversity remains largely underused in current breeding, farming and forest management. Conservation efforts (in-situ, ex-situ) aim to capture, preserve, evaluate and make available a substantial share of these global assets. However, access to resources is often limited by the quality of the material and the information provided by the various conservation sites. With increasing concerns over biodiversity loss and genetic erosion, there is a need to step up collaborative efforts to expand and improve the preservation, evaluation and the use of plant and animal GenRes in farming and forestry.

Activities will accelerate the mobilization of GenRes from in-situ and/or ex-situ collections to benefit plant breeding and the delivery of new varieties which are better adapted to variable environments and consumer demands. They will tackle the GenRes-user interface, i.e. propose improvements to the information available to users with regard to characteristics of accessions and also to the visualisation of this information. Major resources shall be devoted to prebreeding activities implemented in close cooperation between public, private and nonfor profit sectors. The involvement of SMEs is crucial and will be fostered through targeted calls and financial support to third parties. Due attention shall be given to pre-breeding activities undertaken across Europe ad covering different pedo-climatic regions ...

Grant conditions (third parties)

BUSINESS FINLAND SFS-call: Building capacities

SFS-30-2018-2019-2020: Agri-Aqua Labs/Plant energy biology (C) IA | EUR 5/5 M | Opening 15 OCT 2019 | DL 22 JAN & 8 Sept 2020

Specific Challenge: Agriculture and aquaculture are increasingly knowledge-intensive sectors that need to be supported by advances in basic science domains in tandem with translational research. This nexus between **basic and** applied research requires specific openings for testing ideas and their potential application in plant and animal production, both terrestrial and aquatic...

In the area of crop production, there is a fundamental interest in deciphering the dynamic responses of plants as they (pre)adapt to local conditions or adjust their growth and development to changes in the environment within their plasticity range. These adaptive traits are all the more important as plants are sessile and therefore require effective strategies to deal with uncertainty and to tolerate rather than avoid stress. Understanding the different adaptation strategies, and the circumstances that favour one strategy over another, is vital for understanding how annual or perennial crops perform in a given environment or under changing conditions. It will also help to assess how plants may respond to future environmental changes. Food and other plant-based products are the result of plants' capacity to harvest light and convert it into chemical energy to build energy rich organic compounds and ultimately biomass. Energy efficiency is central to plant yield and robustness. The various components of the complex plant energy system as well as their interactions (in spatial and temporal terms) need to be better understood as a basis for crop improvement, crop management and adaptability of crops to changing environments.

Proposals will advance our understanding of the plant energy system in terms of elucidating specific mechanisms as well as the complex processes and interactions that determine overall energy efficiency in plants.

FINLAND SFS-call: International cooperation (3 calls)

SFS-35-2019-2020: Sustainable Intensification in Africa/Vector-borne diseases in Africa (C) RIA | EUR 12/6 M | Opening 15 OCT 2019 | DL 22 JAN & 8 Sept 2020

<u>Specific Challenge</u>: African and European agriculture share the common challenge of moving towards more sustainable ways of agricultural production. Both regions aim to ensure food production and reduce the environmental impact of agricultural activities in the face of climate change, more unpredictable water supply and increased degradation of (land) resources. Systems approaches are needed to optimise agricultural productivity as well as the delivery of ecosystem services.

Environmental modifications such as climate change and globalisation are increasing the risk of infectious animal diseases emerging in new locations with greater frequency, and this is particularly relevant with vector borne diseases. These diseases have a major impact not only on livestock production and related economy but also on global food security and trade. Some of these emerging diseases also threaten human health (zoonoses). The African continent suffers from a number of vector-borne diseases, sometimes with heavy burden, although it is not always fully ascertained. A number of these diseases occur or do present a risk of introduction and spread also in Europe. The complex transmission cycles can make it difficult to assess risk and organise control. We need to get further knowledge on these diseases, not least on their vectors, in order to improve their control, and assess their potential spread all over Europe.

The proposals should aim to develop knowledge on selected vector-borne diseases affecting terrestrial livestock, whether they also affect humans or not. The proposals may address one or more diseases. Priority should be given to diseases with either a serious impact in Africa, or a risk of spread to Europe with significant consequences, or both. Activities should cover the ecology of the pathogens and vectors, and epidemiological features, including the risk of short and long distance transmission and the capacity for the disease to establish in and spread to new areas, with potentially features different from the original area. The burden of disease in animals (and humans if relevant), and the socio-economic impact should be further assessed as appropriate. Systems and/or networks to improve epidemiological surveillance strategies in domestic and wild species should be developed/strengthened. Activities should also address detection and control tools, including prevention, monitoring, diagnostics and... related EU-projects, clustering with other projects

Eligibility and admissibility conditions/no of African participants

BUSINESS SFS-call: International cooperation

CE-SFS-36-2020: Diversifying revenue in rural Africa through bio-based solutions RIA | EUR 18/9 M | Opening 15 OCT 2019 | DL 22 JAN & 8 Sept 2020

<u>Specific Challenge</u>: In many African regions, agriculture is predominantly subsistenceoriented, hence most **farmers lack the means to invest on improving the productivity of their exploitation activities, or to undertake basic transformation of their produce**. Low productivity and lack of economic diversification makes farmers vulnerable to food insecurity, and contribute to a continuous migration towards urban areas, especially among the younger generations.

In many locations, **unsustainable practices generate serious impacts on the environment**, such as deforestation for energy or for new agricultural land, or soil degradation, which further aggravate the vulnerability of rural populations.

<u>Scope</u>: Proposals shall screen existing bio-based technologies that can be adapted and successfully transferred to rural African contexts. The focus should be on simple, robust technologies that can be operated and maintained locally, and suitable for operation at farm, village or rural community level (including mobile systems). A variety of end-products can be considered, and the business models developed should be sustainable and highly circular. Although bio-fuels or bio-energy can be part of the end-products, projects focussing mainly on these outputs are not eligible...

Eligibility and admissibility conditions/no of African participants

FINLAND SFS-call: International cooperation

SFS-40-2020: Healthy soils for healthy food production RIA | EUR 5/5 M | Opening 15 OCT 2019 | DL 22 JAN & 8 Sept 2020

Specific Challenge: The EU and China are facing similar challenges of increasing soils health and producing more high quality food for increasing population. At the same time soils are facing a lot of pressures from use of fertilizers (manure and mineral), historical management of soils and increasing land degradation. To achieve certain quality of food production management of soils at the farm level needs to incorporate techniques for soil remediation/soil quality restoration and balanced fertilizer application. For the long-term increase of soil quality land management techniques should adopt and enhance quality of soils.

<u>Scope</u>: The proposals shall analyse soil remediation strategies and assess sustainable use of fertilizers for agricultural production including social-economic and environmental aspects. The evaluation of tools and methods for increasing the quality of soils and of food produced is included in the scope. Proposals shall also address land degradation aspects and prevention of further degradation. They shall cover the evaluation of agricultural systems (e.g. organic farming, agro-ecology, agroforestry) and their suitability to achieve a good status of soils for sustainable food production. The proposals shall build on the past projects financed under the EU—actor. Proposals shall promote balanced research and innovation cooperation between the EU and China. China-based entities that will participate in joint projects with European partners under Horizon 2020 have also the possibility to apply for funding under the Chinese co-funding mechanism.



Call – Blue Growth

- aims at **sustainably harvesting the potential of resources from seas**, oceans and inland waters for different uses and across the range of marine and maritime industries, **while protecting biodiversity and enhancing climate resilience**. It supports resources for healthy, productive, safe, secure and resilient seas and oceans, which are essential for thriving ecosystems, climate regulation, global food security, human health, livelihoods and economies.
- will boost the blue economy by:
 - Improving our integrated knowledge about the reciprocal impact of climate change on marine ecosystems and biological resources in order to effectively manage their response, mitigation and resilience capacities
 - Preserving and sustainably exploiting marine and coastal ecosystems, and biological resources to deliver improved nutrition and health
 - **De-risking major investments and boosting blue innovations** on land and at sea to develop new bio-based marine value chains and open up new markets
 - Developing smart and connected territories between land and sea; and
 - Strengthening the international research and innovation cooperation around seas and oceans, to promote a globally sustainable blue economy

FINLAND Call – Blue Growth (3 topics)

BG-07-2019-2020: The Future of Seas and Oceans Flagship Initiative/Technologies for observation (C) IALS | EUR 18/9 M | Opening 15 OCT 2019 | DL 22 JAN

<u>Specific Challenge</u>: Our future is intimately linked to the future of the seas, oceans and coasts. The seas, oceans and coasts provide multiple ecosystem services and a wealth of resources, influence climate and provide many economic opportunities. To fully profit from the seas and oceans also in the future, we have to **preserve those valuable resources and ensure that their exploitation is sustainable**. Furthermore, without **appropriate ocean observations for forecasting and for the protection of property and human activities**, the global economy would lose hundreds of billions of euros annually. For this, **we need to have the technologies for observations, integrated ocean observing systems, data management systems, and appropriate models and services...**

Proposals shall address i) the demonstration of new and innovative technologies to measure the Essential Ocean Variables (EOV) at all depths, and ii) sensors to measure variables for aquaculture, fisheries, micro and nanoplastics, and marine litter and micro-litter, iii) the demonstration of novel approaches to observe the ocean with multiple underwater, surface, and air vehicles (surface and air vehicles are optional, but underwater must always be included) with a view to realizing the digital ocean. Optional air vehicles could potentially, among others, contribute to the development of fully documented fisheries...

TRL 6 or higher

Grant conditions/lump sum; Eligibility and admissibility conditions/Brazil, Evaluation criteria/ranking list,

FINLAND Call – Blue Growth

BG-10-2020: Fisheries in the full ecosystem context RIA | EUR 16/8 M | Opening 15 OCT 2019 | DL 22 JAN & 8 SEP

Specific Challenge: Fisheries, an important part of the blue economy, provides food, generates gross profit of around EUR 1,342 billion and accounts for more than 150,000 jobs, and contributes to coastal social cohesion and resilience. The Common Fisheries Policy (CFP) regulates access to and use of the marine living resources. The CFP seeks to apply the ecosystem-based approach to fisheries management, with fishing in line with the Maximum Sustainable Yield concept and minimizing the effect of fishing on the ecosystem. The Marine Strategy Framework Directive (MSFD) requires that fish and shellfish stocks are in good environmental status. The Maritime Spatial Planning Directive aims to regulate uses of the marine environment. The design of such policies can be better served with a holistic, integrated approach. For successful policy implementation an improvement of our predictive capacity of environmental impacts on marine biogeochemistry and productivity, food webs and ecosystem structure and functioning, is required. Considerable effort to scientifically and technically support these policy objectives goes hand in hand with filling considerable gaps in basic knowledge and providing predictive tools available for integrated management.

<u>Scope</u>: Building on related work done in previous research and innovation framework programmes and in other EUfunded programmes, research activities shall fill in knowledge gaps which hinder an efficient, ecosystem-based approach to the management of fisheries (e.g. biological characteristics and assessment of marine habitats; links of environmental factors and abundance, health, growth, reproduction etc. of fish stocks and human health and consumption etc., taking into account sex and gender differences if and where relevant; relations of different trophic levels in the food chain; efficiency of management measures protecting the ecosystem, interactions with and impacts from/on other uses of the sea). The proposals shall integrate existing and new knowledge in modelling or other applied tools/methods which can be used by scientific advisory bodies in sustainable fisheries management...

FINLAND Call – Blue Growth

BG-11-2020: Towards a productive, healthy, resilient, sustainable and highly-valued Black Sea RIA | EUR 18/9 M | Opening 15 OCT 2019 | DL 22 JAN & 8 SEP

Specific Challenge: The Black Sea contains the largest body of oxygen-free hydrogen sulphide-rich marine waters on Earth. Any new local, national or transboundary policy measures should consider its special ecosystem characteristics, its biodiversity and its submerged cultural heritage sites. The European Commission has been supporting the work of researchers from all the Black Sea countries to advance a shared vision for a productive, healthy, resilient, sustainable and highly-valued Black Sea by 2030. The first step was a gap analysis and **a Vision Paper: A Blue Growth Initiative for Research and Innovation in the Black Sea** (May 2018), leading to the drafting of a Strategic Research and Innovation Agenda (SRIA) for the Black Sea basin. The Vision Paper **identifies a series of challenges for the Black Sea basin**, which are driven by a range of human-induced and natural drivers, such as pollution, maritime transport, eutrophication, climate change, and coastal hazards. The abundance of gas hydrates is a particular asset of the Black Sea that represents both opportunities and risks. Fish stocks and species diversity are under severe stress, common surveys and monitoring can provide a base for better assessment, management and prevention. The area's marine heritage and its ecosystem services are also at risk. Black Sea societies can be more deeply connected through a bridge of knowledge, technologies, services and innovations...

<u>Scope</u>: Proposals shall provide solutions for accurate predictive tools and capabilities to tackle the increasingly complex array of multi-stressors and their poorly understood interactions, including their connection with rivers flowing into the Black Sea. Proposals shall address the fundamental Black Sea research challenges, that have been identified so far and others that may be defined as the priority-setting work proceeds, taking into account policy documents such as the MSFD reports of Romania and Bulgaria and the Strategic Action Plan of the Bucharest Convention...



Call - Rural Renaissance

- The Rural Renaissance call will enhance the natural, social, cultural and economic potential of rural areas and support policy coherence. It will boost economic development, ecosystem services and entrepreneurial innovation.
- This will be achieved by building on diversification and modernisation strategies, improving governance models, supporting innovative food and non-food value chains, and capitalising on local assets, including human natural and cultural capital.
- For the purpose of this call, the term "rural" is understood in a wide sense and also includes peri-urban, remote, mountain and coastal areas, unless otherwise specified in the topic description.
- RUR call activities are instrumental in implementing the Focus Areas "Digitising and transforming European industry and services" and "Connecting economic and environmental gains the Circular Economy". Also contributing to the Focus Area "Building a low-carbon, climate resilient future".



RUR; From farm to society: understanding dynamics and modernising policies (assets and long term drivers of rural areas and land use and how they are impacted by current policies)

RUR-21-2020: Agricultural markets and international trade in the context of sustainability objectives

RIA | EUR 4M (1x4M)| Opening 15 Oct 2019 | DL 22 Jan 2020 (1st stage) and 8 Sep 2020 (2nd stage)

Specific Challenge: Strong, complex links between trade, financial, economic and social policies also reflect in agriculture. Farming is one of the sectors with the lowest income worldwide. The global poor are predominantly rural, young, poorly educated, and mostly employed in agriculture. Competition on world markets is considered by some to be the cause of poverty as it drives prices down on some sensitive commodity markets.

Detailed analysis of related UN targets (SDG goals 1,2,3,15,6,13) and environmental issues should be undertaken and options through which trade policy can contribute to achieving the SDGs should be identified.

<u>Scope</u>: Analysing and developing robust methods and indicators to assess the impacts of agricultural international trade on the environment and society.

- -> identifying trade policies contributing to achieving SDGs, fair standard of living for farmers and poverty eradication
- Activities building upon previous studies etc. (see call text)
- In particular relevant supply chains (import/export food/non-food) in agriculture sectors between EU and its major trading partners
- Designing transition paths in order to develop trade relations and value chains in sustainable and fair ways as "equals"

BUSINESS FINLAND

RUR; Organising sustainable food and non-food value chains under changing conditions

RUR-05-2020: Connecting consumers and producers in innovative agri-food supply chains

 CSA | EUR 9M (3x3M)| Opening 15 Oct 2019 | DL 22 Jan 2020
 Specific Challenge: The food supply chain is vulnerable to unfocused and even unfair trading due to imbalances between small and large operators: often farmers and small operators in the food supply chain have hardly any information or connection with the consumer to improve their offer and adapt it to the demand. Objective is to rebalance farmers' position in the food chain by strengthening the sector's market orientation by capacity-building and creating connections between producers and customers) and enhance its competitiveness, incentivising organisational innovation along the supply chain, triggered by new emerging technologies and evolving consumer demand.

Innovative supply chains and novel food systems may tackle the downward pressure on farm gate prices and at the same time make them more sustainable, e.g. by reducing CO2 emissions.

- Focus on costs and margins is needed as well as building small scale producers' knowledge to enable adequate public procurement approaches.
 Proposals have ample opportunity to build on sharing of good practices.
- **Scope**: Activities should look into concrete ways for producers to collaborate on opportunities which are both consumer driven and conducive to improving farmers' incomes.

- Collecting and developing good practices for mutually beneficial cooperation, (needs of primary producers and consumers), proposals shall pay particular attention to the calculation of costs and margins for each link in the supply chain. Activities may cover infrastructure and logistics for efficient access to consumers such as smart joint logistics, optimising sales order picking and transport routes, regaining consumers' trust by shortening chains, direct sales and collaboration, etc.

FINLAND RUR-06-2020: Innovative agri-food value chains: boosting sustainability-oriented competitiveness

- IA | EUR 21M (3x7M)| Opening 15 Oct 2019 | DL 22 Jan 2020 Specific Challenge: Food systems face interlinked challenges jeopardising their sustainability, such as changing climate conditions, deteriorating natural resources, increasing power imbalances in the agri-food value chain, changing demographics and dietary habits. Design processes of solutions to improve their sustainability are still mostly managed separately and such an approach is often ineffective.
- Different actors across the agri-food value chains need to cooperate on innovative integrated approaches to produce and distribute affordable nutritious food for all in a sustainable way. Such co-created innovative designs of agri-food value chains are emerging. Not all innovative strategies are, however, equally sustainable. There is a need to identify such innovative integrated approaches, assess them against sustainability criteria, elicit those with the highest potential to address sustainability challenges across a variety of agri-food sectors and demonstrate their benefits to serve as examples of best practice.

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- <u>Scope</u>: Building on the state of the art, the proposals shall map and assess existing innovations, and (re)design and pilot innovative systemic approaches to agri-food value chains that unlock their full potential to achieve economic, social and environmental sustainability and foster cooperation, notably involving farmers. The innovative approaches to agri-food value chains should combine diverse forms of innovation, for instance, technological, social, organisational, managerial and institutional, etc. -> best practises, recommendations, toolkits...
- multi-actor approach & cooperation with other topics and projects!
- <u>Expected impacts</u>; long-term, win-win economic relationships, better understanding and fairer distribution of costs, benefits and risks, new innovative sustainable business models, strengthened farmers' position in agri-food value chains etc.

FINLAND RUR-07-2020: Reducing food losses and waste along the agri-food value chain

• IA | EUR 12M (2x6M) Opening 15 Oct 2019 | DL 22 Jan 2020 Specific Challenge: Reducing food losses and waste, primarily through prevention, has enormous potential for ensuring sustainable food and nutrition security, reducing greenhouse gas emissions and lessening environmental impacts by improved resource use efficiency. Nonetheless, reducing food losses and waste all along the agri-food value chain is not straightforward, as the problem is a result of manifold and highly interlinked causes. To avoid shifting the burden of food losses and waste from one stage of the agri-food value chain to another, it is important to coordinate the innovative actions to tackle food losses and waste along all stages of the agrifood value chain.

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- Scope: proposals shall identify, validate and demonstrate innovative, effective ways to reduce food losses and waste, with a focus on preventing avoidable losses and waste of perishable products, all along the agri-food value chain from primary production down to final household consumption and disposal. Proposals should consider diverse forms of innovation, e.g., technological, social, organizational, managerial and institutional, etc. . When applicable, proposals should address requirements from relevant EU regulatory frameworks, including premarket approval.
- proposals shall include a task to measure and monitor food losses and waste, methods being compatible with the EU legislation
- activities to inform diverse actors along the agri-food chain
- multi-actor approach! Complementaries and cooperation with other projects and contributing to relevant EU initiatives expected,
- Expected impacts; increase the capacity and engagement of actors along the agri-food chain to collaborate with each other towards the common objective to reduce food losses and waste, raise awareness on the value of food and increase shared responsibility, new innovative technologies, added-value products, business models and modes of cooperation between actors across the agri-food chain with large potential for market replication
- TRL of the solutions can vary at the start of the project -> should achieve at least TRL 6-7
CE-RUR-08-2018-2019-2020: Closing nutrient cycles <u>Sub-topic C</u>: Bio-based fertilisers from by-products of the agri-food, fisheries, aquaculture or forestry sectors <u>Sub-topic D</u>: Bio-based fertilisers from waste water and sewage sludge

- <u>Specific Challenge</u>: The EU depends strongly on external sources for the supply of key fertilisers used in agriculture. Resource depletion and an increasing global demand for mineral fertilisers may, in the long term, lead to price tensions with an impact on food security. Mineral-based fertilisation also poses significant environmental problems. At the same time, large amounts of minerals are being dispersed in the environment through a large variety of organic waste streams, resulting in soil, water and air pollution.
- <u>Scope</u>: Proposals shall address inter-regional and intra-regional imbalances through effective nutrient recovery from by-products of the agri-food or forestry sectors, or from waste water and sewage sludge, and conversion into novel fertilisers

BUSINESS FINLAND Sub-topic C: IA | EUR 16M (2x8M) | Opening 15 Oct 2019 | DL 22 Jan 2020

- Projects shall demonstrate processes for recovery of mineral nutrients and production of novel fertilisers from by-products of the agri-food, fisheries, aquaculture or forestry sectors, excluding animal manure, water and sewage sludge
- Activities beyond past or ongoing research, without overlaps. Technologies should be further improved, and possibly integrated, to produce high quality end-products
- Proposals shall address end product marketability, safety, sustainability including emissions of greenhouse gasses and pollutants, and compliance with relevant EU regulations. Their suitability and acceptability under the organic farming regulatory framework should also be analysed. An integrated assessment of the business model (economic, agronomic, social and environmental) shall be performed.
- Whole value chain shall be demonstrated to a near-commercial scale (TRL 6-7)!
- Multi-actor approach!
- Project should include a task to cluster with other projects
- Participation of partners from CELAC (Latin American & Caribbean) countries encouraged

BUSINESS
FINLANDSub-topic D: RIA | EUR 6M (1x6M) | Opening 15 Oct 2019 | DL 22 Jan
2020 (1st stage) and 8 Sep 2020 (2nd stage)

- Projects shall develop techniques for nutrients recovery from waste water streams such as urban and industrial waste water, sewage sludge from waste water treatment plants, brine from water desalination or demineralisation plants
- Building on related work under previous FP and other EU programmes, project should design and test techniques for nutrients recovery and subsequent mechanical, chemical or biological processes to upgrade recovered nutrients
- The monitoring and removal or mitigation of contaminants (e.g. pharmaceuticals in sewage sludge) in recovered nutrients should be key in the process design. A life-cycle assessment should be carried out in order to evaluate the environmental impacts and regulation issues should be part of the investigation.
- Involvement of governments at different levels as regards regulation issues, regional/local strategies and territorial development plans is an asset.
- Whole value chain shall be demonstrated to a near-commercial scale (TRL 6-7)!
- Multi-actor approach!

- <u>Expected Impact</u>: Proposals are expected to provide the technologies needed to develop a new generation of commercial, sustainable and safe fertilisers based on organic by-products, and the scientific knowledge needed to frame their use. This will help to:
- replace non-renewable mineral fertilisers, hence reducing external dependence and risks related to depletion (sub-topics C and D);
- balance nutrient concentrations between or within regions, thus increasing resource efficiency (sub-topic C);
- reduce the environmental impacts linked to the dispersion of nutrients present in waste flows, to the emissions of greenhouse gases, or to the production of fossil-based fertilisers (sub-topics C and D);
- develop new business models creating value from agri-food, fisheries, aquaculture or forestry by-products (sub-topics B and C) and from water sector and the industrial sector subject to waste water treatment, including desalination or demineralisation plants (sub-topic D).

LC-RUR-11-2019-2020: Sustainable wood value chains Sub-topic B: Resilient forest systems

• Specific Challenge: Forests play a vital role in Europe's economy, society and environment. The forest-based sector can contribute to climate change (global warming) mitigation through increasing sinks in and reducing emissions from living biomass, soils and wood products, and the substitution of non-renewable resources through the sustainable use of material and energy use of wood-based materials. Climate change is at the same time increasing forests' vulnerability.. While ensuring the sustainability of forest production systems under changing climate conditions remains a long-term objective for the sector, a key challenge now is to further develop and deploy the technological advancements of environmental and micro/macroclimate-friendly woodbased value chains on the ground remove the GHG emitted by other parts of the economy, and provide for a wide range of other social, economic and ecological services. The forest-based sector provides income for 16 million forest owners and 3-4 million workers in rural areas, and represents some 8% of the EU's total manufacturing value.

BUSINESS
FINLANDSub-topic B: RIA | EUR 10M (2x5M) | Opening 15 Oct 2019 | DL 22 Jan
2020 (1st stage) and 8 Sep 2020 (2nd stage)

- Proposals aim at enhancing the adaptation of forest ecosystems (both primary and secondary) and forest production systems to the growing societal demands for forest products (i.e. wood and non-wood) and ecosystem services, considering trade-offs, climate change and vulnerability to natural disturbances (e.g. storms, droughts, pathogens, wild fires).
- Restoration of degraded ecosystems and natural expansion of forests, considering the long-term rural development, climate change mitigation objectives and biodiversity enhancement are also in the scope.
- Proposals shall encompass a varied range of forest and site types and tailored forest management systems representative of Europe's biogeographic regions.
- Proposals shall cover multiple parts of the production cycle and related operations, from regeneration/planting to harvesting, considering jointly supply (i.e. primary production) and demand (i.e. socioeconomic) factors and are expected to be interdisciplinary in nature

- Suitable for international cooperation and SMEs participation
- Technology integration with SSH and RRI aspects expected

Expected Impact: In the framework of SDG 9,1 1, 13 and 15, the EU's Forest Strategy 2013, the Circular Economy Package 2015, the Paris Agreement 2015, the EU's Bioeconomy Strategy 2018, and the EU Action Plan for Nature, People and the Economy, proposals are expected to assess how they will contribute to:

- Protection and restoration of biodiversity of primary and secondary forest
- Enhanced contribution of the forest-based sector to long-term climate change mitigation, adaptation and rural development objectives
- Also in the long-term, prompt a sizeable positive change to European landscapes and economies, by keeping the countryside green and serving to make cities greener, and increasing the share of both decent and green jobs
- Advancing available solutions from TRL 3-4 to TRL 5

SSH = social sciences and humanities, RRI = responsible reseach and innovation



RUR; Boosting innovation and enhancing the human and social capital in rural areas

RUR-15-2018-2019-2020: Thematic networks compiling knowledge ready for practice

 CSA| EUR 10M (5x2M) | Opening 15 Oct 2019 | DL 22 Jan 2020 **Specific Challenge:** Despite the continued funding of scientific projects, innovative ideas and methods from practice are not captured and spread, while also often research findings are not integrated into agricultural and forestry practice. It is essential to act at EU level to remedy this because national and sectoral agricultural knowledge and innovation systems (AKISs) are insufficiently connected and organised to fully facilitate the necessary intensifying of thematic cooperation between researchers, advisors and farmers/foresters. This exchange of knowledge will foster economically viable and sustainable agriculture and forestry.

• Scope:. The activities of thematic networks are summarising, sharing and presenting, - in a language that is easy to understand and is targeted to farmers and foresters existing best practices and research findings that are close to being put into practice, but not sufficiently known or used by practitioners. The specific themes of the networks can be chosen in a 'bottom-up' way. First and foremost, they must tackle the most urgent needs experienced by farmers and foresters. If it is appropriate to solve these needs, the themes can cover sectoral or cross-sectoral issues, organisational or management solutions. The activities should pay attention to the cost/benefit aspects of the specific practices collected and summarised. A comprehensive description of the state of current farming practices relative to the chosen theme should explain the added value of the proposal and the relevance of the theme for the farmer. The proposal should also explain how it avoids duplication with ongoing or completed projects and networks. In order to better reach and capture knowledge from the targeted farmers/foresters, the networks may organise 'cross-fertilisation' through subnetworks covering, for example, a region, a language or a production system.



- The result of the project should be an extensive range of useful, applicable and appealing enduser material for farmers and foresters. This information should be easy to access and understand, and feed into the existing dissemination channels most consulted by farmers and foresters at national or regional level. It should also be provided to the European Innovation Partnership (EIP) 'Agricultural Productivity and Sustainability' in the common "practice abstract" format.
- Multi-actor approach
- project duration preferably three years and a consortium based on a balanced mix of actors with complementary knowledge clearly activating farmers/foresters, farmers' groups and advisors.
- Wherever possible, details on the synergies with relevant EIP Operational Groups and interactive innovation groups operating in the context of the EIP-AGRI are expected, and, if useful, with other European Structural and Investment Fund projects.
- In the exceptional event that minor testing of specific solutions would be needed, a maximum of 20% of the project budget may be used for this purpose.

BUSINESS FINLAND Call – Food and Natural Resources

- FNR call bridges towards Horizon Europe. As the challenges related to food and natural resources are complex, interlinked and global in nature, activities will follow a systemic approach. The call fosters participatory approaches to research and innovation, including the multi-actor approach and develop knowledge and innovation systems at local, regional, national and European levels. Social innovation with citizens' engagement and trust in innovation will be crucial to encourage new governance, production and consumption patterns. The FNR call aims to sustainably manage and use natural resources from land and sea; ensure food and nutrition security, providing safe, healthy and nutritious diets;
- accelerate the transition from a fossil-based linear economy to a low emission, low-carbon circular economy and sustainable bio-based economy
- Activities supported under the FNR call complement topics under other SC2 calls and contribute towards implementation of the EU Bioeconomy strategy and its action plan. They will also contribute to the Focus Area on "Building a low-carbon, climate resilient future" and to a minor extent to Focus Areas "Digitising and transforming European industry and services" and the "Circular Economy".
- The actions are expected to support Europe's endeavours to implement in particular SDGs 2,6,8,9,11,12,13,14,15

EUSINESS FINLAND Coordination and support actions (CSA) FNR-01-2020, FNR-02-2020, FNR-03-2020, FNR-04-2020, FNR-08-2020, FNR-10-2020, CE-FNR-15-2020, FNR-18-2020

CSA | EUR (call budgets below)| Opening 15 Oct 2019 | DL 22 Jan 2020

- FNR-01-2020: Strengthening the European agro-ecological research and innovation ecosystem (€ 2M 1 project)
- FNR-02-2020: Developing long-term monitoring and evaluation frameworks for the Common Agricultural Policy (€ 2M - 1 project)
- FNR-03-2020: A comprehensive vision for urban agriculture (€ 2M 1 project)
- FNR-04-2020: Towards a European research and innovation roadmap on soils and land management
- FNR-08-2020: Supporting the food safety systems of the future (€ 3 M 1 project)
- FNR-10-2020: Public engagement for the Bioeconomy (€ 1M 1 project)
- CE-FNR-15-2020: A network of European bioeconomy clusters to advance biobased solutions in the primary production sector (€ 2M - 2 projects)
- FNR-18-2020: Sustainability of bio-based products international governance aspects and market update (€ 1,5M - 1 project)

BUSINESS FNR-05-2020: Husbandry for quality and FINLAND sustainability <u>Sub-topic A:</u> Husbandry for sustainability <u>Sub-topic B:</u> Husbandry for quality

- RIA | EUR 21M | Opening 15 Oct 2019 | DL 22 Jan 2020 (1st stage) and 8 Sep 2020 (2nd stage)
- Animal products constitute an important source of good quality, digestible proteins, minerals and vitamins in human consumption. As global demand increases, livestock sector faces challenges as it contributes significantly to greenhouse gas emissions and puts pressure on the environment and natural resources -> increased risks to the health and welfare of animals -> human health
- Means to improve sustainability of terrestrial livestock production and consumption systems need to be sought. Farming systems and the agri-food chain need to be (re)designed in a holistic manner to best reconcile the various demands concerning productivity, sustainability, quality and other societal values, for now and the future
- Proposals shall address only one of the sub-topics

BUSINESS Requirements:

FINLAND A: RIA - € 9M/project (Husbandry for sustainability)

- Comprehensive assessment of the sustainability and potential delivery of ecosystem services, social services, resilience, competitiveness and possible tradeoffs of livestock production. The assessment should be holistic, encompassing the main facets of the concerned systems, and their role in a circular economy
- The assessment should form the basis for a coordination of further action in research, innovation, policy-making and business development.
- ➤ Multi-actor approach!

B: RIA - € 6M/project (Husbandry for quality)

- Proposals should undertake an assessment of the intrinsic quality of livestock products stemming from different production systems The intrinsic qualities covered will at least encompass: (i) food safety (ii) nutritional value, (iii) organoleptic quality and sensorial features of animal products.
- > TRL of developed solutions -> 6-7 at the end of the project, multi-actor approach!

Proposals should contribute in achieving the following impacts:

- Incorporation of societal demands in livestock production
- Increasing the added value of livestock products, via higher quality and/or more sustainable production processes
- (Scope A) Development of pathways for action in research, innovation, policy and business development, in support of a sustainable development of the EU livestock sector
- (Scope B) Understanding of the relation between intrinsic quality and husbandry

LC-FNR-06-2020: Defossilising agriculture - solutions and pathways for fossil-energyfree farming <u>Sub-topic A</u>: Pathways for a fossil-energy-free-agriculture <u>Sub-topic B</u>: Close-to-market solutions for fossil-energy-free farming

- CSA/RIA | EUR 21M | Opening 15 Oct 2019 | DL 22 Jan 2020 (1st stage) and 8 Sep 2020 (2nd stage)
- Challenge: Bioeconomy expected to contribute to de-fossilation, but agriculture still reliant on fossil energy potential to use renewabkle energy still untapped:
 - -> technical issues; reducing complexity, increasing cost-effectiveness
 - -> policy design pathways
 - -> raised awareness -> reduced GHG emissions

Clustering with other projects and multi-actor approach ecpected in both sub-topics!

A: CSA - € 2M/project

Requirements:

≻Knowledge and policy hub,

Benchmarking policies and technologies

- Developing attractive materials including roadmap for energy-intensive: farming systems, agricultural practices and agricultural inputs
- >Assessing approaches (economic, social, environmental)
- -> Vision of de-fossilisaton of agriculture

• B: RIA - € 5M/project

Testing cost-effective technical solutions

➢Focus on on-farm practice

>TRL of developed solutions -> 6-7 at the end of the project



CE-FNR-07-2020: Food2030 – Empowering cities as agents of food system transformation



IA | EUR 38M (ca. 12M/project)| Opening 15 Oct 2019 | DL 22 Jan 2020

- Over 70 % of people live in cities by 2050 > need for safe, healthy, sustainable and nutritious food for inhabitants -> food system transformation involving different actors = multi actor approach and RRI + cooperation with other projects!
- In projects at least 10 cities involvement of local authorities needed + setting up a living lab in each city required
- Centralised coordination and comparability assessment
- -> Dissemination and communication of good practises
- -> Evidence for policy makers, building up of political commitment for future actions
- -> Creation of a wide network of European cities, increased awareness and involvement among citizens, sovial inclusion -> Increased food and nutrition security, innovation

opportunities, jobs and growth



NUTRITION for sustainable and healthy diets



CLIMATE smart and environmentally sustainable food systems



CIRCULARITY and resource efficiency of food systems



INNOVATION and empowerment of communities



CE-FNR-09-2020: Pilot action for the removal of marine plastics and litter

IA | EUR 13,2M (2 x ca. 6M)| Opening 15 Oct 2019 | DL 22 Jan 2020

- Already >150 million tons plastics in oceans affecting fisheries, agriculture, tourism, recreational use, heritage, biodiversity and animal and human wellbeing and huge annual costs in terms of reduced marine capital
- Requirements/impacts:
 - Demonstration of technologies & methodologies to clean the seafloor and the surface of nearshore waters, and possibly the water column, from historically accumulated plastics and micro-plastics + recycling/reuse/treatment
 - Environmental impact has to be minimized and assessed
 - Clustering and joint activities with other projects strongly encouraged
 - Achieved TRL at leasr 6

-> projects contributing to awareness about the importance of preventing environmental damages

- > 90% removal of macro plastic litter and long term 80% removal of micro plastics in shellfish in treated areas

-> improved professional skills, efficient and environmentally sustainable technologies for removing plastic litter

-> ensuring that collected matter will be reused or converted in line with The European Circular economy strategy

FNR-11-2020: Prospecting aquatic and terrestrial natural biological resources for biologically active compounds Sub-topic A; Prospecting terrestrial resources Sub-topic B: Prospecting aquatic resources

RIA | EUR 30M (4x7,5M)| Opening 15 Oct 2019 | DL 22 Jan 2020 (1st stage) and 8 Sep 2020 (2nd stage)

Unified topic deścription (specific challenge, scope and impact), only divided by source environment (i.e. sub-topics A/B), due to their different specificities (and R&I communities)

• Proposals should address only one of the following sub-topics:

A: Actions must focus on land-based biological natural resources.

B: Actions must focus on marine and fresh-water biological natural resources.

- Exception in the evaluation procedure: Grants will be awarded to proposals according to the ranking list. However, in order to ensure a balanced portfolio of supported actions, at least the highest-ranked proposal per sub-topic will be funded provided that it attains all thresholds. Cooperation with other selected proposals under this topic is encouraged.
- See the call text for details, including definitions (e.g. footnote 255: "(...) Large macromolecules such as proteins/enzymes are excluded").

FNR-12-2020: Industrial microbiomes – learning from nature

RIA | EUR 12M (2x6M)| Opening 15 Oct 2019 | DL 22 Jan 2020 (1st stage) and 8 Sep 2020 (2nd stage)

- Open to microbial communities with "stability" and "functional robustness"
- Challenge: to optimise existing industrial processes and/or to design and develop wholly
 new microbiome-based industrial processes
- Proposals should focus on concrete bio-based processes and/or products involving synthetic microbial consortia and using –omics tools; activities should optimise the use of pre-existing databases and big-data management tools; apply cross-sectorial approach, shared standards across borders, improve professional skills
- Raise awareness, improve overall knowledge of the industrial microbiome and the biobased sector's overall sustainability; strengthen the market position and increase the market share of bio-based solutions
- Demonstrate solutions and develop strategies for innovation; enhanced cooperation between all stakeholders; deliver results for efficient feedback into policymaking in research, innovation and technology

EUSINESS LC-FNR-13-2020: Bio-based industries leading the way in turning carbon dioxide emissions into chemicals

RIA | EUR 21M (3x7M)| Opening 15 Oct 2019 | DL 22 Jan 2020

- Bio-based industries leading the way in turning carbon dioxide emissions into chemicals
- Climate change mitigation and circular economy are the base of the topic
- Includes "innovative technologies for converting CO2 from industrial plants processing biomass" and "biotechnological processes" for the conversion of CO2 into added-value chemicals
- Addresses technical challenges and business models, operations and logistics;
- Environmental considerations: proposals should include a life cycle assessment of the environmental performance beyond climate change mitigation
- Proposals should also explore the socio economic and regulatory measures required to support the use of CO2 as a raw material for the production of chemicals
- Other considerations: "development of algae-based concepts is excluded", possibility of industrial symbiosis

BUSINESS FINLAND CE-FNR-14-2020: Innovative textiles – reinventing fashion

IA | EUR 21M (3x7M)| Opening 15 Oct 2019 | DL 22 Jan 2020

- Sustainability and resource efficiency in the centre of the topic: whole value chain approach
- Includes "development of innovative, techno-economically feasible materials and processes for the production of resource-efficient, sustainable and functionally performing bio-based textiles";
- Addresses "the technical, environmental and economic aspects of bio-based textile recycling, focusing on quality, i.e. targeting up-cycling, or at least, recycling into the same or similar quality applications";
- Environmental considerations: "the use of new bio-based materials and the design of textiles that are either biodegradable or do not shed microfibers and have the properties needed for performance applications"
- Part of the Circular Economy R&D: Work on the sustainability and safety of end products should embrace the use of resources as a whole and incorporate the established standards for products with a small environmental footprint, from life-cycle assessment to ecolabelling. In addition, activities should investigate the elements needed for the development of innovative circular business models for bio-based textiles.

BUSINESS FINLAND FNR-16-2020: Enzymes for more environment-friendly consumer products

RIA | EUR 18M (3x6M)| Opening 15 Oct 2019 | DL 22 Jan 2020 (1st stage) and 8 Sep 2020 (2nd stage)

- Focus on enzymes used in the consumer products
- Challenge to expand the use of enzymes for greener consumer products, combining economic competitiveness and greater sustainability
- Proposals should address the development of novel or improved enzyme(s) for the processing and/or the formulation of one or more consumer products (e.g. washing agents or textiles); bioprospecting or exploitation of existing databases could be involved
- Activities should assess the environmental impact and improve the environmental performance; cooperation with other selected proposals under this topic is encouraged
- Proposals should develop efficient production system of enzymes(s) and cover the management of safety aspects in combination with the development of generic platform technologies
- Deliver market transition strategies, engage stakeholders, provide efficient policy feedback, enhance the competitiveness and sustainability of EU industry (biotechnology and consumer products)

EUSINESS FINLAND CE-FNR-17-2020: Pilot circular bio-based cities – sustainable production of biobased products from urban biowaste and wastewater

IA | EUR 8M (1x8M) | Opening 15 Oct 2019 | DL 22 Jan 2020

 Proposals shall provide Project Development Assistance (PDA) to a pilot group made up of at least 5 European cities (and/or clusters of cities) to build their technical, economic and legal expertise needed for leading to concrete investments in projects to valorise urban biowaste and wastewater through the production of safe and sustainable bio-based products, including the innovative ones.

-> Delivery of sustainable circular bio-based economy investments and support to the launch of the related projects embedded in urban circular bio-based economy strategies to valorise urban biowaste and wastewater through the production of bio-based products, including the innovative ones.

-> Creation of a European network to facilitate the exchange of good practices and lessons learned among circular bio-based cities





FINLAND ICT-46-2020: Robotics in Application Areas

IA | EUR 6-7M | Opening 19 Nov 2019 | DL 22 Apr 2020 Specific Challenge: Robots face new technical and non-technical challenges. To address such issues in a modular and open way, and reduce the barriers that prevent a more widespread adoption of robots. 4 Priority Areas are targeted: healthcare, inspection and maintenance of infrastructure, agri-food and agile production. Scope: Through large-scale pilots, proposals are expected to make a significant step forward in platform development in one of the two application areas: In the Agri-Food sector from farming to processing and distribution OR Agile Production.

ICT-56-2020: Next Generation IoT

RIA | EUR 5-8M | Opening 9 Jul 2019 | DL 16 Jan 2020 Specific Challenge: The challenge is to leverage EU technological strength to develop the next generation of IoT devices and systems which leverage progress in enabling technologies such as 5G, cyber-security, distributed computing, artificial intelligence (AI), Augmented Reality and tactile internet. Scope: Reference implementations should include proof-ofconcept, demonstrations and validation, driven by realistic use cases with advanced needs in areas such as wearables, transportation, agriculture homes, health and energy.

DT-ICT-09-2020: Boost rural economies thru e-platforms

IA | EUR 15M | Opening 19 Nov 2019 | DL 22 Apr 2020 Specific Challenge: One key challenge is to overcome the barrier of missing interoperability of smart object platforms and service platforms that share and exploit data between them. Scope: Proposals are expected to develop and demonstrate cost-efficient and flexible cross-domain applications through large-scale pilots. These should build on an open, API-based, interoperable and federated IoT architecture and include a reference implementation supporting flexible integration of heterogeneous services.

SC2 STALSTICS



1 Jan 2014 – 13 March 2019

- ✓Total EC Contibution to Finland: EUR 900M
- ✓Horizon Thema 3.2 Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy <u>EUR 70M</u>.
- ✓ Horizon Thema 3.2. EUR 70M: SC2 EUR 31M / BBI € 34M / SMEI (2016-2017) € 5M
- \checkmark Beneficiaries in total 54 from which in RIA/IA actions 50
- \checkmark Finnish success rate for funding is ca. 15 %.
- ✓ Success rates jump typically to 20-30 % when having existing networks with experienced partners.

APPENDIX NCPQOUR SERVICE



BUSINESS What NCPs Can Do 4 You in Practise? (1)

- ✓To inform and to provide general and specific info about calls, conditions and offer Commission's <u>annotated</u> info behind calls.
- ✓To assist, advise and train e.g. about project submission, budgeting and reporting. Offers project proposal second opinion & pitching coaching.
- ✓Questions are welcome and NCP has <u>direct contacts</u> to the European Commission for clarifications.
- ✓ Signposting and cooperation with other funding opportunities (national & international).

BUSINESS FINLAND What NCPs Can Do 4 You in Practise? (2)

- ✓ Finnish NCPs act as a co-delegate and expert members in different theme focused <u>committees</u> in order to provide hints where EC R&D activities, funding instruments and conditions are going.
- ✓Close cooperation nationally between business Finland, Academy of Finland, VTT, Sitra, different ministries and key stakeholders to affect e.g. Finnish proposal bilateral discussions with Commission and to join forces with other delegates/NCPs.
- ✓Also possibility to use <u>national voice</u> to foster Finnish research and innovation in the short term & in the long run (2021-2027).

FINLAND What a NCP Can Do 4 You in Practise? (3)

- ✓NCP can provide call statistics, conclusions and reasons behind success rates. NCP has the access to proposal <u>Evaluation Summary Reports</u> which provide valuable information about different consortia and lessons to learn.
- Business Finland NCPs have the access to Business Finland <u>customer portfolio</u> (research and corporate projects) which helps to build either domestic and international consortia.
- ✓NCPs have their <u>colleagues in every EU country</u> to help to find the relevant partner in different industry R&D domains.
- \checkmark Knows about the key technology platforms, PPPs and events in EU in advance.

✓ Last but not least: <u>no conflicts of interest</u>.

FURTHER INFO

BUSINESS Online sources of information:

- H2020 SC2 WP 2018-2020
- <u>https://ec.europa.eu/research/participants/data/ref/h2020/wp/20</u> 18-2020/main/h2020-wp1820-food_en.pdf
- H2020 SC2 info day material for proposals 2020
- <u>https://ec.europa.eu/programmes/horizon2020/en/news/horizon</u> -2020-info-day-societal-challenge-2-calls-proposals-2020
- European Commission funding & tenders:
- <u>https://ec.europa.eu/info/funding-</u> tenders/opportunities/portal/screen/programmes/h2020
- Finnish H2020 pages:
- <u>https://www.businessfinland.fi/suomalaisille-</u> asiakkaille/palvelut/rahoitus/horisontti-2020/lyhyesti
BUSINESS FINLAND

QUESTIONS WELCOME

THANKS!

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