

***Joint meeting of the CDG ANIMAL PRODUCTS (Section Pigmeat) and  
the CMO EXPERT GROUP (Section Animal Products)***

***EUROPEAN PIGMEAT REFLECTION GROUP – 4th Meeting – 12 September 2022***

## **Overview of R&I projects linked to the pigmeat sector**



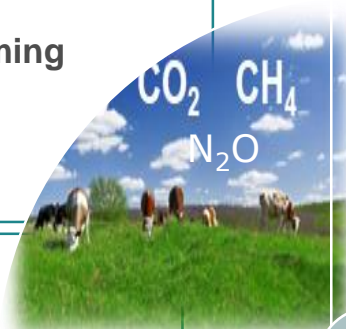
**Research Policy Officer  
DG AGRI F2 – Research and Innovation**

## EU strategies & targets

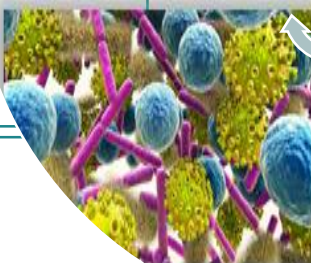
- Green Deal / Farm to Fork Strategy / Biodiversity Strategy / Methane Strategy / Circular Economy Action Plan
- Zero Pollution Action Plan
- EU Climate Law
- Nitrate Directive
- Organic Action Plan
- .....

## AIR QUALITY

- Production systems, mixed farming



- Alternative source of proteins



- Microbial ecosystems

- Animal Health & Welfare\*

## SOIL QUALITY

## GHG BALANCE

- Animal breeding, genetics, genomics



- Manure/slurry management

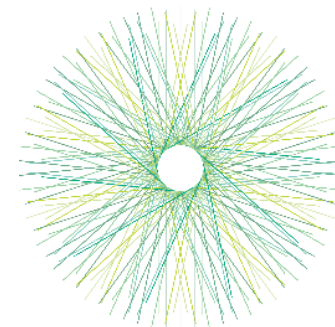


- Nutrition
- Feeding strategies

## WATER QUALITY

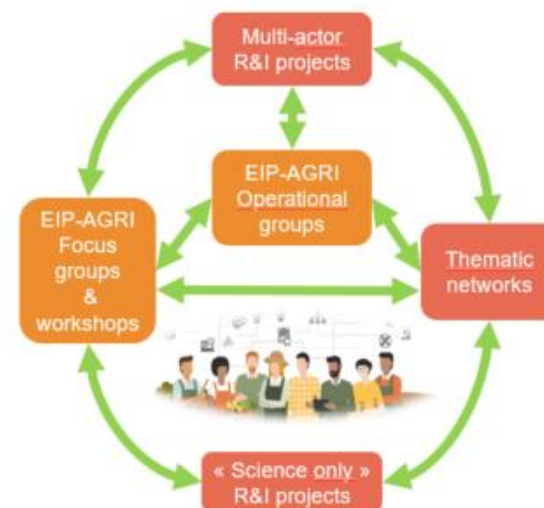
## R&I as key enablers

CAP



eip-agri  
AGRICULTURE & INNOVATION

Horizon 2020  
Horizon Europe



\*: this presentation doesn't cover specific projects animal health and welfare (will be presented in November)

# H2020/HE projects on pig production systems (1/3)

## Sustainability



- **Pathways** (2021-2026; €9M) *Pathways for transitions to sustainability in livestock husbandry and food systems; multispecies (includes **pigs**)*, <https://cordis.europa.eu/project/id/101000395>

**Main objectives:** To increase resilience in the supply of safe, nutritious, affordable livestock-based food while decreasing the environmental impact and boosting the economic sustainability of the livestock sector in the EU. Visions, scenarios and transition pathways co-developed through an participatory approach based on innovative practice hubs, living labs and interaction within a European multi-actor platform and a wider community of practice.



- **EU Pig Innovation Group** (Thematic network ended in 2020; €2M) *Platform for knowledge exchange* <https://cordis.europa.eu/project/id/727933>

**Main outputs:** <https://www.eupig.eu/>, Four main themes: Health, Welfare, Precision and Meat Quality. Project aimed to help pig producers find tried-and-tested best practice from fellow producers across Europe, sharing all new knowledge in one place, on-line. Practice abstracts.

- **Re-Livestock** (Sep2022-Aug2027; €12M; **HE**) *Facilitating Innovations for Resilient Livestock Farming Systems; dairy/beef cattle and **pigs**.*

**Main objectives:** To understand and mobilize adoption of innovative practices, applied cross-scale (animal, herd/farm, sector and region), to reduce the GHG emissions and to increase the capacity for dealing with climate change impacts. Specific objectives: improve the sustainability of feeding resources; accelerate the development and application of new breeding tools and strategies; evaluate system specific farm-level husbandry practices; refine and apply innovative holistic farm-scale environmental and socio-economic assessment tools to enhance the adoption of the practices; design action-based pathways for the transition; understand the factors influencing the adoption and efficacy of mitigation and adaptation practices with multi-actor engagement.

# H2020/HE projects on pig production systems (1/3)



**Sustainable Animal Production**  
(Mar. 2016–Feb. 2022; €5M EU)

37 partners from 23 countries

**SRIA and project results on websites**

<https://era-susan.eu/> - <https://cordis.europa.eu/project/id/696231>

Calls 2018 and 2021 with other ERA-NETs

Call 2016

- **SusPigSys:** Sustainable **pig** production systems (€1.4M)
- **SusPig:** Sustainability of **pig** production through improved feed efficiency (€1M)
- **PigSys:** Improving **pig** system performance through a whole system approach (€1.3M)
- **PEGaSus:** Phosphorus efficiency in poultry and **pigs:** Bridging the gaps in the phosphorus value chain (€1M)
- **AnimalFuture:** Steering Animal Production Systems towards Sustainable Future (€1.25M) - multispecies

Call 2018  
GHG

- **M4MODELS:** Manure management for methane mitigation (€1M) - cattle and **pigs**  
**Main outputs:** New in-vitro method for estimating CH<sub>4</sub> production rates tested, modified and used for on-farm monitoring; Effects of storage period and T° on residual biogas potential investigated (90 d storage -> up to 66% of biogas potential lost); Information to set up country specific model for **pig** and dairy farms has been acquired...
- **MELS:** Mitigating GHG emissions from livestock systems (€1M)  
**Main outputs:** Emission mitigation data identified and categorized. Review of existing country-specific GHG accounting tools for manure management systems and managed soils; Open-access farm-scale DSS prototype is under development - for countries lacking such a tool...

Call 2018  
Circularity,  
Mixed  
systems

*Multi species projects (none specifically on pigs)*

- **CircAgric-GHG; ConnectFarms; MI BICYCLE; PROENV; ReLive; SENSE; Solution4Farming**

# H2020 projects on pig production systems (2/3)



Organic Food and Farming Systems  
(Dec. 2016-Nov. 2021; €5M EU)

26 partners from 19 countries  
Project results: <https://projects.au.dk/coreorganiccofund/>

Organic



- **POWER** (2018-2021) handbook "Welfare and environmental impact of organic **pig** production" <https://www.fibl.org/fileadmin/documents/shop/1300-hb-power-en.pdf> .



- **ROAM-Free** (2021-2024) *RObust Animals in sustainable Mixed FREE-range systems.*

**Aim:** Combining organic pig production with other livestock or better integration of **pigs** with (cash) crops or trees, in mixed free-range production systems



# H2020 projects on pig: manure, energy, (circularity)



- **Fertimanure** (2020-2023; €8M) Innovative nutrient recovery from secondary sources – Production of high-added value FERTILisers from animal MANURE (poultry, **pigs**, cattle) <https://cordis.europa.eu/project/id/862849>



- **RES4LIVE** (2020-2024; €5M) Energy Smart Livestock Farming towards Zero Fossil Fuel Consumption. <https://cordis.europa.eu/project/id/101000785>

**Aim:** Energy efficiency measures in typical livestock farms, potential penetration of renewable energy sources (**pigs**, dairy cattle, chicken broilers)



- **AgroCycle** (2016-2019; €7M) Sustainable techno-economic solutions for the agricultural value chain. Includes **pig** slurry treatment <https://cordis.europa.eu/project/id/690142>



- **Nutri2Cycle** (2018–2022; €7M) Transition towards a more carbon and nutrient efficient agriculture in Europe. <https://cordis.europa.eu/project/id/773682>

**Aim:** Integrating on-farm techniques and systems that allow better reconnection between 1) animal husbandry provided flows (**pigs**, poultry, cattle) 2) plant production requirements

- **DEPURGAN** (2015-2017 SC5-SME; budget €2.7M incl. 1.9 EU contribution) **Swine-Farm** revolution <https://cordis.europa.eu/project/id/673771>

**Main output:** Depurgan (<https://depurgan.com/>) patented pig manure treatment system fully automated, expandable. The technology is suitable for irrigation and farm cleaning. Claimed to not generate greenhouse gases, to get rid of waste and to not pollute aquifers

- And other ones, e.g. **Biowave** (2016-2018, FTI) biogas from anaerobic digestion of **pig** manure <https://cordis.europa.eu/project/id/691404> ...

Circularity  
(SC2 &  
others)

# H2020 projects on pig production: genetic resources; breeding

## Genetic resources



- **Treasure** (2015-2019; €3,4M) Diversity of local **pig** breeds and production systems for high quality traditional products and sustainable pork chains <https://cordis.europa.eu/project/id/634476>

**Main outputs:** tools describing and evaluating the performance of local pig breeds across agro-geo-climatic conditions and production systems (indoor, outdoor, organic); open access book published with information on the main productive traits of representative local European pig breeds; significant genomic data generated highlighting the adaptive capacity and resilience of these breeds.



- **Image** (2016-2020; budget €8.5M incl. EU contribution of €7M) Innovative Management of Genetic Resources <https://cordis.europa.eu/project/id/677353> **Aim** was to aim to enhance the use of genetic collections and to upgrade animal gene bank management



- **GenRes Bridge** (2019-2021; €3M) Joining forces for genetic resources and biodiversity management <https://cordis.europa.eu/project/id/817580>

**Outputs:** Genetic Resources Strategy for Europe ([www.genresbridge.eu/GRS4E](http://www.genresbridge.eu/GRS4E)); portal to map and access initiatives and GenRes actors ([www.genres.eu](http://www.genres.eu)); open-access, peer-reviewed journal ([www.genresj.org](http://www.genresj.org)) etc

## Genomics and breeding



- **GENE-SWitCH** (2019-2023; €6M) The regulatory GENomE of **SWine** and CHicken: functional annotation during development <https://cordis.europa.eu/project/id/817998>

**Main objectives (pigs):** characterize the dynamics of the functional genome from pig fetus to adult life. New expression QTL data in pigs will be used for developing genomic predictive models that integrate functional annotations, and these models will be validated in commercial pig populations. Nutritional epigenetic data will allow evaluation of the influence of maternal diet on the epigenome of the pig fetus.



- **GERoNIMO** (2021-2026; €7M) Genome and epigenome enabled breeding in monogastrics. (poultry and **pigs**) for different types of traits; <https://cordis.europa.eu/project/id/101000236>

**Main objectives:** provide new knowledge and tools to promote innovative genome- and epigenome-enabled selection methods for traits related to production efficiency, productive longevity, fertility, resilience and welfare. Develop techniques for improving selection by integrating genetic and non-genetic factors and strategies for conserving genetic and epigenetic diversity.

# H2020 projects on pig production: feed/feeding

## Feed production/ Feeding techniques



- **Feed-a-Gene** (2015-2020; €9M) Adapting the feed, the animal and the feeding techniques to improve the efficiency and sustainability of monogastric livestock production systems (**pigs**, poultry, rabbits) <https://cordis.europa.eu/project/id/633531> ; <https://www.feed-a-gene.eu/>
- **Ok-NetEcoFeed** (Thematic network, 2018-2021; €2M; IFOAM coordinator) Organic Knowledge Network on Monogastric Animal Feed. Organic and regional feed production for **pigs**, broilers and laying hens. <https://cordis.europa.eu/project/id/773911>  
**Main outputs:** organic farm knowledge platform (<https://organic-farmknowledge.org/>). The project carried out 18 field trials on alternative feeds, involving more than 9000 chickens and 1000 pigs; developed a ration planning tool, an Excel-based app which allows farmers to calculate their own feed requirements based on the breed of animals they have, their stage of growth, and what sort of feed they are using



- **SUSINCHAIN** (2019-2023; €8M) Sustainable insect chain. Insects for feed/food; incl. testing on **pigs**, poultry and fish; <https://cordis.europa.eu/project/id/861976>;
- **PROFUTURE** (2019-2023; €8M) Microalgae protein ingredients for food and feed (incl. formulation, testing in **piglets**) <https://cordis.europa.eu/project/id/862980>;
- **NESTLER** (**HE**; 2022-2025; €4.4M) oNe hEalth SusTainabiLity partnership between EU-AFRICA for food sEcuRity (incl. insects for feed –incl. **pigs**) (webpage NA yet)

## Alternative sources for feed (& food)



European  
Commission



# H2020 projects on pig production: microbiome, quality

## Microbiome



- **CIRCLES** (2018-2024, €10M) *Controlling mIcRobiomes CircuLations for bETter food Systems* (6 food systems incl. **pigs**), <https://cordis.europa.eu/project/id/818290>

**Main Objective:** The project is creating real-world labs in the field of six food systems relevant to the EU market – tomatoes, spinach, poultry, **pigs**, Atlantic salmon, and seabream aquacultures – to understand the role of the food system microbiomes in productivity, quality, safety and sustainability.

- **3D-Omics** (2021-2025; €10M) *Three-dimensional holo'omic landscapes to unveil host-microbiota interactions shaping animal production*. Host-microbiota interactions in poultry and **pigs**. <https://cordis.europa.eu/project/id/101000309>



**Main objectives:** To generate 3D omics landscapes, achieving reconstructions of intestinal host microbiota ecosystems. Using poultry and **swine** production systems, the project will analyse the effects of different factors, including animal development, diet, exposure to pathogens, and management practices on the 3D omics landscapes. The research will pave the way to improved animal breeding practices, development of microbiota- and host-tailored feeds and animal health treatments, increasing production efficiency and animal welfare.

## Product quality



- **MEATQUALITY** (2021-2025; €6M) *Linking extensive husbandry practices to the intrinsic quality of **pork** and broiler meat*; <https://cordis.europa.eu/project/id/101000344>

**Main objectives:** Study effects extensive husbandry factors on intrinsic meat quality through data collection on conventional, organic and free-range farms, consumer expectation studies and controlled experiments. Develop innovative techniques for automated quality assessment. Evaluate blockchain technology and fingerprinting techniques to combat food fraud, assess advanced farming practices against sustainability aspects, and communicate the results through an app, animated movies and a database for authentication.

# H2020 projects on pig production systems: other

## Housing

- **HybridFarm** (2015-2018; €2M; SME instrument) Eco-innovative housing solution for efficient production of **slaughterpigs** with limited environmental impact; <https://cordis.europa.eu/project/id/673453>

**Main Output:** AgriFarm company developed a 'IntelliFarm' concept (<https://agrifarm.dk/en/>) claiming to enable over large reduction in ammonia/odour emissions (over 50%) and in energy/heating consumption

## Infrastructure (non SC2)

- **PIGWEB** (2021-2026; €5M) An infrastructure for experimental research for sustainable **pig** production; <https://cordis.europa.eu/project/id/101004770>



*Joint Research Activities:* Non- or minimally invasive methods (digestion studies, blood sampling); methods, tools and technologies that provide indicators of welfare, behaviour and body composition; phenotyping for traits relevant for sustainable pig production.

## Digital (SC2 & others)

- **IoF2020** (2017-2020; budget €34M, LEIT) Internet of Food and Farm 2020. <https://cordis.europa.eu/project/id/731884>



**Aim** was to accelerate adoption of IoT for securing sufficient, safe and healthy food and to strengthen competitiveness of farming and food chains in Europe. (Some work on **pigs**)

- **SmartAgriHubs** (2018-2022, €20M) Connecting the dots to unleash the innovation potential for digital transformation of the European agri-food sector. <https://cordis.europa.eu/project/id/818182>



A network of Digital Innovation Hubs that boost the uptake of digital solutions by the farming sector. Some Innovation experiments include **pigs**

# Horizon Europe: various instruments to power the transition



Agroecology living labs and research infrastructures



Animals and health



Agriculture of data



Safe and sustainable food systems



# Thank you

*So much more than food...*



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