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Commission



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Research and Innovation

for reducing the EU dependency on imported plant protein

Through the research programmes Horizon 2020, Horizon Europe and the European Innovation Partnership, the European Union funds projects to develop competitive and sustainable farming systems and food chains that participate to the reduction of the EU dependency on imported plant protein.

This factsheet describes the European Union research and innovation (R&I) activities in the field of supply and demand of protein.

*Agriculture
and Rural
Development*

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I. R&I for supply of protein

Fact #1.1: Systemic deficit of R&I for legumes

Over the last sixty years, the EU acreage for the main oilseeds was multiplied by six while legume area was divided by six between 1961 and 2007 with an increase since 2007.

Lower economic return from legumes compared to cereals and oilseeds is frequently claimed by farmers. Hence, legumes entered into a vicious circle at all steps of the production and the value chain, resulting in a technological lock-down: the lower production leading to lower use in the value chain, leading in turn to lower investment in agronomy, breeding, farm advisory, and processing, resulting in the decrease of legume cultivation and use¹². The area cultivated in legumes being low, there is no incentive in developing strong breeding programs.

The lack of R&I investments concerning legumes is illustrated by comparing the number of wheat varieties registered in 2015 in the European Union's Common Catalogue of Plant Varieties with the number of varieties registered for fields peas and fields beans.

<i>Wheat (excluded durum wheat)</i>	<i>Pea</i>	<i>Bean</i>
2 234	392	134

Figure 1: Number of varieties registered in 2015 in the EUPVO - Common Catalogue

Source: Magrini et al., 2016

Public support for breeding activity and improving the value chain of legumes is needed.

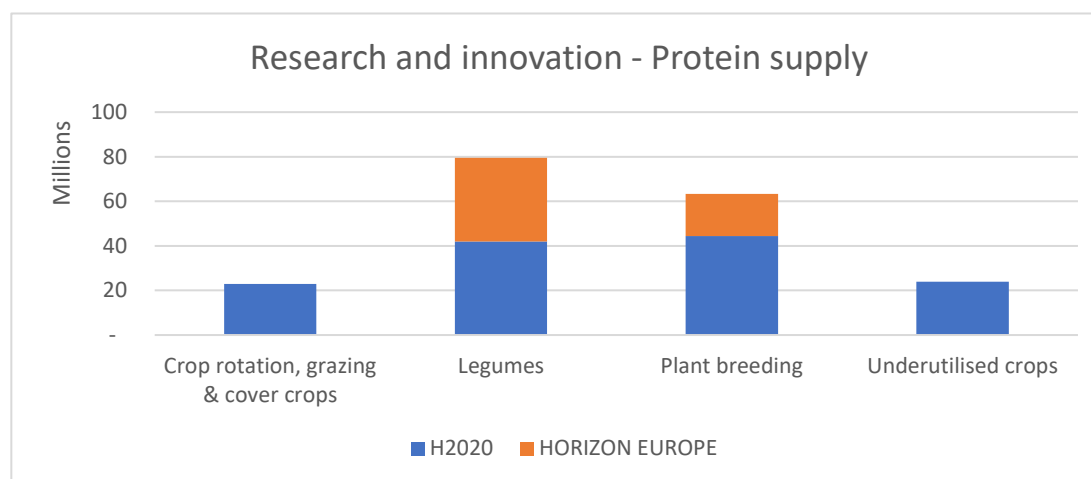


Figure 2: R&I - Protein supply

Source: DG AGRI

¹ Magrini, M. B., Anton, M., Choleza, C., Corre-Hellou, G., Duc, G., Jeuffroy, M. H., et al. (2016). Why are grain-legumes rarely present in cropping systems despite their environmental and nutritional benefits? Analyzing lock-in in the French agrifood system. *Ecol. Econ.* 126, 152–162. doi: 10.1016/j.ecolecon.2016.03.024

² Rubiales D, Annicchiarico P, Vaz Patto MC and Julier B (2021) Legume Breeding for the Agroecological Transition of Global Agri-Food Systems: A European Perspective. *Front. Plant Sci.* 12:782574. doi: 10.3389/fpls.2021.782574

Fact #1.2: EU R&I projects to foster the sustainable production and use of legume crops across Europe

The EU Horizon 2020 R&I funding programme (2014–2020) funded several projects that specifically respond to the Commission’s commitment to foster the production and use of legumes as a key step-stone towards an increased EU self-sufficiency in food and feed as well as providers of unique environmental benefits and ecosystem services. A list of funded projects is available in table 2 of the annex, summing up a total budget of EUR 45.3 million. The EU Horizon Europe R&I funding programme (2021–2027) is further supporting the production of legumes in the EU for food, feed and valorising the environmental services they provide, with interesting projects covering the whole agri-feed and food value chain. For the work programmes 2021, 2022 and 2023 of Horizon Europe, the total budget already reaches EUR 38.5 million.

Fact #1.3: EU R&I beyond legume crops production

The commitment of the Commission to reduce the EU dependency on imported plant-based protein goes beyond projects targeting local traditional legume crops production.

The Commission invested in activities linked to plant breeding on legumes as well as other protein-rich crops under Horizon 2020 for a total budget of EUR 50.9 million (see table 1 in annex). Under Horizon Europe, already EUR 30.3 million is dedicated to breeding projects. While those breeding projects do not only focus on legumes or soya, they also aim at making our agricultural system more resilient and sustainable, notably with the objective of fostering EU-grown plant proteins and contributing to healthier food and feedstuff.

To make the EU food and agriculture value chain stronger and more resilient, the Commission finances, under Horizon 2020, research on underutilised and genetically diverse crops for an amount of EUR 24.0 million (see table 3 in annex). That research aims at promoting broader use of those varieties, including legumes, in breeding, farming and in food/non-food value chains.

Several projects on legume-based crop rotations, grazing systems, cover crops or fertiliser reduction are financed by the Commission under Horizon 2020 programme for a total budget of EUR 26.0 million (see table 4 in annex). Grasslands, being the main source of protein for EU livestock, are in the focus for more research to improve their sustainability and water-nutrients use efficiency. In a context of a global mineral fertiliser crisis provoked by high energy prices, it is crucial to invest in research aiming at reducing the use of synthetic fertilisers, while investing on bio-based fertilisers for both economic and ecological reasons.

Fact #1.4: Future R&I investments for the supply of plant protein

All these projects are providing a very important contribution to strengthening the role of legumes in farming systems and agri-food/feed chains and promoting their agronomic, environmental and economic values.

While not exhaustive, the list of projects listed in annex, related to legume crops and other sources of plant-based protein, gives a fair notion of the budget invested under Horizon 2020 programme in

this domain (from 2014 to 2022), representing an EU contribution of EUR 133 million ³. This figure represents 3.5 % of the estimated ⁴ budget for Horizon 2020 Societal Challenge 2 (EUR 3 851 million).

The Commission will continue to invest in R&I under the future Horizon Europe Cluster 6 work programmes, to support EU plant protein production and to build on the results from projects implemented under Horizon 2020. The Horizon Europe work programmes 2021, 2022 and 2023 are further supporting R&I in those field covered for a total EU contribution of EUR 58.4 million.

³ This amount covers Horizon 2020 projects belonging to tables 1, 2, 3 and 4.

⁴ Note we consider herein the 'estimated' budget, which may slightly differ from the actual total budget finally spent.

II. R&I for feed demand

Fact #II.1: Finding solutions to improve protein efficiency of the EU livestock

There is a considerable dependency of the livestock sector on protein-rich feed resources, mainly co-products that are imported from third countries. 74% of crude protein from protein-rich feed (i.e. oilseed meals) is imported from third countries. This dependency raises concerns about EU food security and sustainability.

The potential for diversification of feed supply greatly varies between livestock species, production methods and regions. Pastures and forage are an important source of protein for ruminants (42% of livestock needs of protein). Ruminants utilize a high share of roughage, which is the only feed protein source for which the EU is self-sufficient, while monogastrics' rations are mainly based on grains and on human-inedible leftovers and by-products.

Although farmers are taking innovative steps to increase the sustainability and productivity of both conventional and organic livestock farming systems, they are confronted with several challenges that very often require a change in their farming practices, including the search for greater feed self-reliance in European livestock.

Then, shaping a sustainable future for livestock requires to develop integrated solutions considering options based on animal feeding, breeding and genomics, microbiomes, manure management, dual-purpose cropping, circularity, livestock systems diversification and animal welfare. To this aim, more R&I is needed.

Fact #II.2: Investing for reducing the dependency of the EU livestock sector

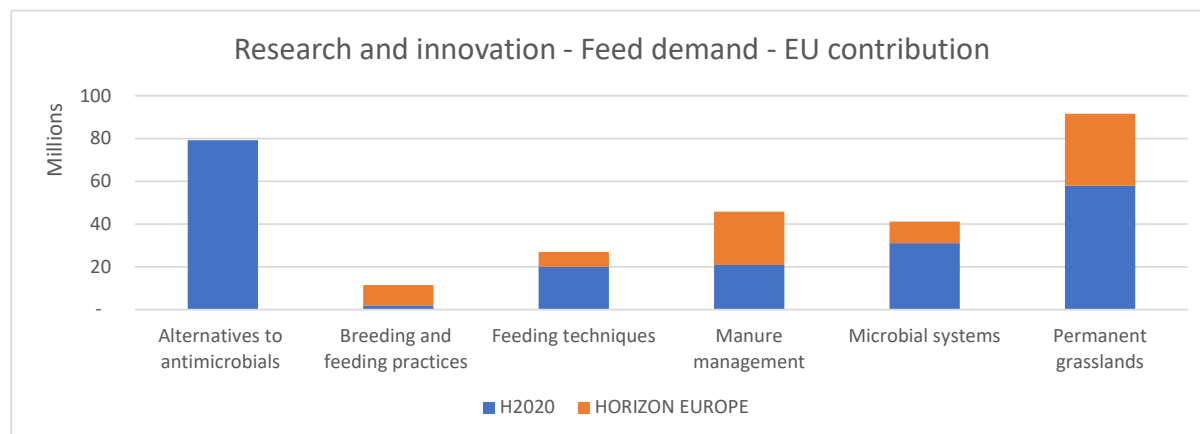


Figure 3: R&I – Feed demand

Source: DG AGRI

The EU Horizon 2020 programme funded several projects on sustainable management of grassland and feeding techniques, for a total EU contribution of EUR 78.0 million (see tables 5 and 9 in annex), that specifically respond to the Commission's commitment to diversify feed supply strategies that reduce the EU's reliance on animal feed imports and improve the sustainability of livestock production

systems. In addition, the EU Horizon 2020 programme also funded projects on microbial ecosystems of livestock (table 6 in annex), on sustainable and effective alternatives to antimicrobials (table 7 in annex), on the relationship between animal feed and feeding and health and welfare (table 8 in annex) and on innovative circular approaches such as manure management (table 10 in annex) for a total EU contribution of EUR 168.8 million. Even though the scope of those projects goes beyond the diversification of the feed supply, their results will have a direct impact on the feeding efficiency and, therefore, on the reduction of the EU dependency on imported plant protein.

The Commission will continue to invest in R&I under future Horizon Europe work programmes, to support EU sustainable livestock farming systems and to build on the results from projects implemented under Horizon 2020 and Horizon Europe. The Horizon Europe work programmes 2021, 2022 and 2023 are further supporting R&I in those field covered for a total EU contribution of EUR 66.7 million.

III. R&I for alternative protein sources

Fact #III.1: A strong R&I need in alternative protein sources

Considering the limited availability of land in the EU, alternative protein sources should be explored as an additional mean to preserve food security and sustainability.

While the value of traditional plant proteins such as beans and lentils is well-established, R&I could help to improve novel plant-based food products. Recent technological advancements have facilitated the creation of alternatives that closely match the sensory qualities and nutritional benefits of meat, fish, and dairy products. Offering diverse alternative protein sources (e.g. plants-based, fungi, microbes, meat from cell cultures, insects, algae (macroalgae and microalgae)) can contribute to tackle global challenges such as climate change, natural resource scarcity, food security and malnutrition. In this vein, the use of biotechnologies would help to reduce the EU external dependencies in the agri-food sectors. The Communication adopted by the Commission on 20 March 2024 on “Building the future with nature: Boosting Biotechnology and Biomanufacturing in the EU” considers biotechnologies applications helpful to reduce crop and food losses and contributing to reduce the overall environmental footprint of agri-food production systems making them more resilient and supportive to reach the EU climate neutrality goal and to provide more sustainable and healthier foodstuff.

There are still some important knowledge and research gaps as regards alternative protein sources. For instance, very few species of algae have been thoroughly investigated and the availability of reliable information on the EU algae sector is currently limited. Extending research in this domain is therefore crucial to grasp their full potential as alternative protein sources.

When it comes to alternative proteins created by microorganisms with the help of precision fermentation, even though funding for R&I is available, there are still knowledge gaps to be covered on the development of industrial infrastructure and the scaling up production. A focus on this area and on how to innovate in order to bring products to the market is justified and encouraged with appropriate public and private investment.

Concerning cultured meat, additional investments in R&I are needed to undertake a risk assessment and understand to which extent cultured meat differs from conventionally produced meat. R&I would also help to understand more precisely the alleged sustainability benefits of cultured meat⁵ as well as its impact on health.

Regarding alternative plant-based proteins, despite of the numerous ongoing research projects covering the full length of the value chain, there remains important research gaps calling for a more targeted approach. R&I progress will play a key role in the integration of alternative plant-based foods on diets. One of the main barriers identified for the said integration is related to the taste and texture of products, not mimicking animal-based food convincingly enough, as well as higher price, remaining out of the regular consumer’s price bracket.

⁵ FAO & WHO. (2023). *Food safety aspects of cell-based food*. Rome. <https://doi.org/10.4060/cc4855en>

Insect rearing for food and feed is in its nascent stages, as relatively few entities have committed their resources to the development and scaling up of the industry. Existing knowledge gaps present an important barrier to the potential development and utilisation of insects as a food and feed source. Robust empirical evidence is required in key areas, notably in optimising insect farming methods, exploring the sector's economic viability, analysing its food safety and nutrition potential and furthering knowledge on consumer acceptance.⁶

In sum, R&I is further needed to develop solutions to improve taste/texture, reduce production costs and increase the market uptake of alternative proteins. The outcomes of research projects should be used to (i) foster more downstream innovation and the technological scale-up and scale-out of promising results already obtained and (ii) incorporate consumers' views into new product development and innovation processes to better respond to consumer needs.

⁶ Stull, V., Patz, J. Research and policy priorities for edible insects. *Sustain Sci* **15**, 633–645 (2020). <https://doi.org/10.1007/s11625-019-00709-5>

Fact #III.2: R&I investments in all the area of alternative proteins

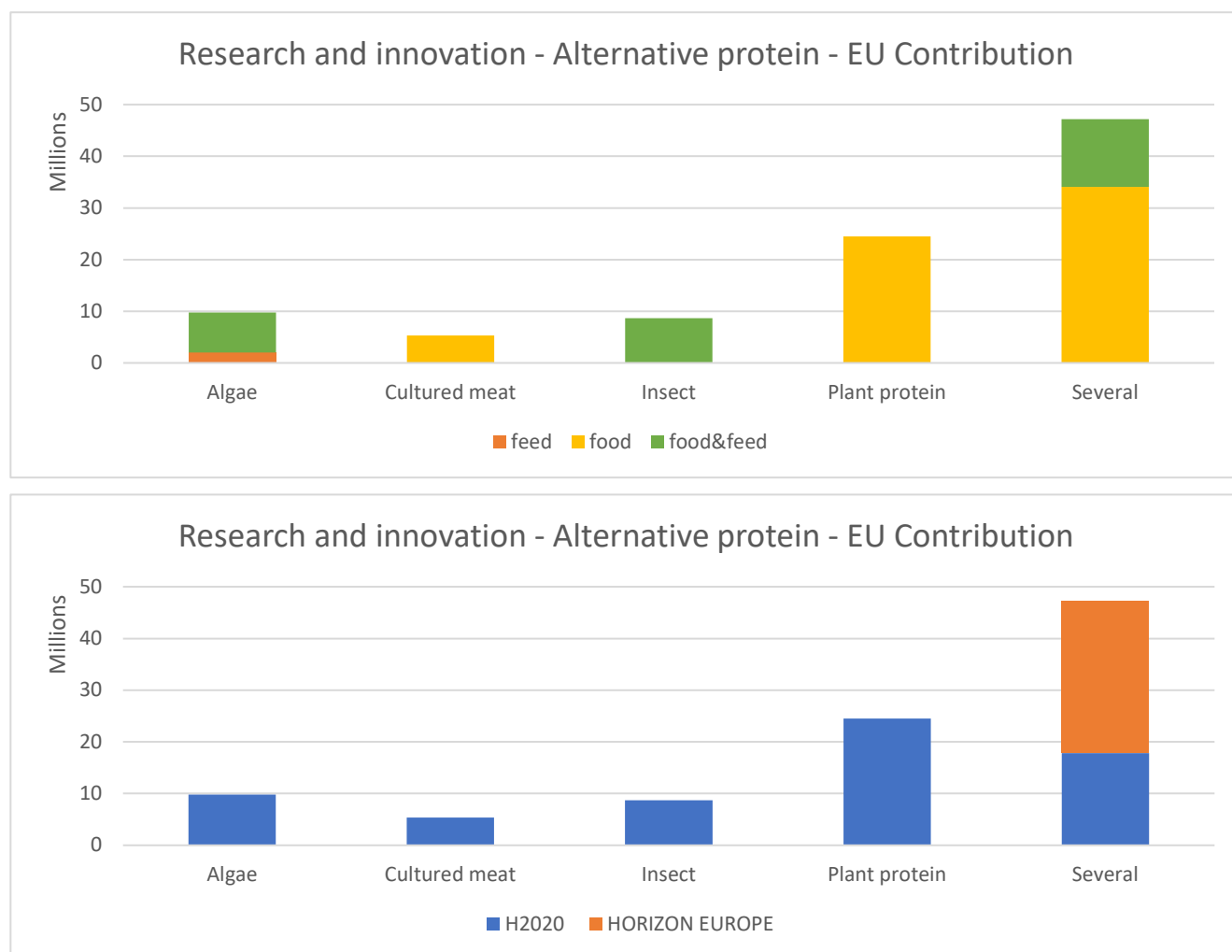


Figure 4: R&I - Alternative protein

Source: DG AGRI

The Commission invested in 14 projects related to alternative proteins under Horizon 2020 for a total EU budget of EUR 66.1 million. This figure represents 1.7% of the estimated⁷ budget for Horizon 2020 Societal Challenge 2 (EUR 3 851 million) Three projects concerning alternative proteins were launched in 2022 and 2023 under Horizon Europe with an EU contribution of EUR 29.3 million. Two additional projects, for a total of EUR 9 million of EU funding, on the impact of the development of novel food on food systems were retained for funding under Horizon Europe [Work Programme 2023-2024](#)⁸ but have not yet started. The main objective is to fill knowledge gaps on alternative proteins. Since some of these sources of proteins did not get the green light yet by EFSA (cultured meat), the aim is NOT to develop a market. Just to get ready for what might come.

The Commission also invests via the European Maritime and Fisheries Fund in research concerning algae⁹.

⁷ Note we consider herein the 'estimated' budget, which may slightly differ from the actual total budget finally spent.

⁸ [HORIZON-CL6-2024-FARM2FORK-01-7: Impact of the development of novel foods based on alternative sources of proteins](#)

⁹ For instance, the "Seafood Alternative" project received a grant of EUR 2.0 million from the support of the European Maritime and Fisheries Fund to develop algae-based fish substitutes.

IV. EIP-AGRI and EU CAP Network



Fact #IV.1: EIP-AGRI and EU CAP Network contributing to the reduction of the EU dependency on imported plant protein

Through the **European Innovation Partnership for agricultural productivity and sustainability** (EIP-AGRI), the EC supports setting-up of Operational Groups working among others on animal nutrition and on alternative proteins for feed and food. Operational Groups are local innovation projects developed in a bottom-up manner by groups of relevant actors. These projects hold great potential for creating innovative solutions that will make farming smarter, more efficient and more sustainable. The database of all projects is available here: https://eu-cap-network.ec.europa.eu/projects/search_en.

On top of that, over the past few years, EIP-AGRI network (which in October 2022 became part of the EU CAP Network) has organised several Focus Groups (FG) addressing sustainable arable crop and livestock production: notably **grazing, feed and feeding**, robust and resilient dairy production systems, new **feed for pigs and poultry**, profitability of **permanent grassland, protein crops**, technical efficiency of mixed farming systems. As the protein supply is most critical, both for human consumption and animal feed, integration of a variety of new or alternative protein sources is currently explored under new EU CAP Network FG on Production of protein crops under climate change.

Details of EIP-AGRI Focus Groups on these domains are available in table 12 of the annex.

Annex on Research and Innovation

Table 1: Project on plant breeding or containing activities linked to plant breeding (on legumes but also on other crops):

ACRONYM	TITLE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON 2020						
<u>CERERE</u>	CEreal REnaissance in Rural Europe: embedding diversity in organic and low-input food systems	<u>CSA - Coordination and support action</u>	01-11-2016	31-10-2019	1.997.550	1.997.550
<u>SOLACE</u>	Solutions for improving Agroecosystem and Crop Efficiency for water and nutrient use	<u>RIA - Research and Innovation action</u>	01-03-2017	30-09-2022	7.192.262	6.000.000
<u>DIVERSify</u>	Designing InnoVative plant teams for Ecosystem Resilience and agricultural Sustainability	<u>RIA - Research and Innovation action</u>	01-04-2017	31-03-2021	4.999.837	4.999.837
<u>REMIX</u>	Redesigning European cropping systems based on species MIXtures	<u>RIA - Research and Innovation action</u>	01-05-2017	30-04-2021	5.986.158	5.000.000
<u>LIVESEED</u>	Improve performance of organic agriculture by boosting organic seed and plant breeding efforts across Europe	<u>RIA - Research and Innovation action</u>	01-06-2017	30-09-2021	8.997.295	7.454.839
<u>EUCLEG</u>	Breeding forage and grain legumes to increase EU's and China's protein self-sufficiency	<u>RIA - Research and Innovation action</u>	01-09-2017	31-12-2021	7.788.193	5.000.000
<u>DYNAVERSITY</u>	DYNAmic seed networks for managing European diVERSITY	<u>CSA - Coordination and support action</u>	01-11-2017	30-04-2021	1.922.901	1.922.901

BIOVALUE	Fork-to-farm agent-based simulation tool augmenting BIOdiversity in the agri-food VALUE chain	RIA - Research and Innovation action	01-10-2021	30-09-2025	5.993.563	5.993.563
DIVINFOOD	Co-constructing interactive short and mid-tier food chains to value agrobiodiversity in healthy plant-based food	RIA - Research and Innovation action	01-03-2022	28-02-2027	5.999.858	5.999.858
				TOTAL	50.877.617	44.368.548

ACRONYM	TITLE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON EUROPE						
Root2Res	Root2Resilience: Root phenotyping and genetic improvement for rotational crops resilient to environmental change	RIA – Research and Innovation Action	01-09-2022	31-08-2027	6.367.651	6.367.651
Legume Generation	Boosting innovation in breeding for the next generation of legume crops for Europe	IA - Innovation action	01-09-2023	29-02-2028	5.950.998	5.533.252
BELIS	Breeding European Legumes for Increased Sustainability	IA - Innovation action	01-10-2023	30-09-2028	7.505.467	7.077.914
IPMorama	Integrating breeding for IPM into the deployment landscape for wheat, potatoes and grain legumes	RIA – Research and Innovation Action	01-09-2024	31-08-2028	4.835.796	4.835.796
COUSIN	Crop Wild Relatives utilisation and conservation for sustainable agriculture	RIA – Research and Innovation Action	01-01-2024	31-12-2028	5.677.697	5.677.697
				TOTAL	30.337.609	29.492.311

Table 2: Projects on valorisation effects of legumes production on the environment and the development of value chains for food and feed, identifying the best “transition paths” to increase sustainable legume cultivation and consumption across Europe.

ACRONYM	TITLE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON 2020						
TRUE *	Transition paths to sustainable legume based systems in Europe	RIA - Research and Innovation action	01-04-2017	30-09-2021	4.999.928	4.999.928
DIVERSify * (as in table 1)	Designing InnoVative plant teams for Ecosystem Resilience and agricultural Sustainability	RIA - Research and Innovation action	01-04-2017	31-03-2021	4.999.364	4.999.364
REMIX *	Redesigning European cropping systems based on species MIXtures	RIA - Research and Innovation action	01-05-2017	30-04-2021	5.986.158	5.000.000
DIVERFARMING *	Crop diversification and low-input farming across Europe: from practitioners engagement and ecosystems services to increased revenues and chain organisation	RIA - Research and Innovation action	01-05-2017	31-10-2022	9.999.278	9.999.278
LEGVALUE *	Fostering sustainable legume-based farming systems and agri-feed and food chains in the EU	RIA - Research and Innovation action	01-06-2017	31-05-2021	5.982.904	5.000.000
DIVERIMPACTS*	Diversification through Rotation, Intercropping, Multiple cropping, Promoted with Actors and value-Chains Towards Sustainability	RIA - Research and Innovation action	01-06-2017	31-05-2022	11.192.324	9.999.985
Legumes Translated	Translating knowledge for legume-based farming for feed and food systems	CSA - Coordination and support action	01-11-2018	30-04-2022	2.159.044	1.999.948
				TOTAL	45.318.998	41.998.501

ACRONYM	TITLE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON EUROPE						
VALPROPATH	New VALue landscapes for plant PROtein Pathways	IA - Innovation action	01-09-2022	31-08-2026	9.647.489	8.662.361
INTERCROPVALUES	Developing Intercropping for agrifood Value chains and Ecosystem Services delivery in Europe and Southern countries	RIA - Research and Innovation action	01-11-2022	31-10-2026	7.419.464	7.419.464
LEGUMINOSE	Legume-cereal intercropping for sustainable agriculture across Europe	RIA - Research and Innovation action	01-11-2022	31-10-2026	7.188.018	7.188.018
LEGENDARY	KnowLEdGE creation and iNcreasing acreage of legumes in Diversified cropping systems by quAntification of their ecosYstem services	RIA - Research and Innovation action	01-01-2024	29-02-2028	4.739.663	4.739.663
LegumES	Valorising and balancing the ecosystem service benefits offered by legumes, and legume-based cropped systems	RIA - Research and Innovation action	01-01-2024	31-01-2027	4.619.172	4.619.172
VALERECO	Valorization Legumes Related Ecosystem Services	RIA - Research and Innovation action	01-01-2024	31-05-2028	4.901.731	4.899.856
				TOTAL	38.515.537	37.528.533

* Those projects have formed a **Crop diversification cluster** ([Crop Diversification Cluster - Crop Diversification Cluster](#)) to bring together research projects that operate in countries across Europe to **increase the impact of crop diversification research**. The cluster encourages sustained uptake of diversification measures by European farmers and through innovations across the agri-value chain.

Table 3: Projects on underutilised crops, including legumes

ACRONYM	TITLE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON 2020						
CROPDIVA	Climate Resilient Orphan croPs for increased DIversity in Agriculture	RIA - Research and Innovation action	01-09-2021	31-08-2025	5.998.258	5.998.258
RADIANT	ReAlising DynamIc vAlue chaiNs for underuTilised crops	RIA - Research and Innovation action	01-09-2021	31-08-2025	5.999.715	5.999.715
BIOVALUE (as in table 1)	Fork-to-farm agent-based simulation tool augmenting BIOdiversity in the agri-food VALUE chain	RIA - Research and Innovation action	01-10-2021	30-09-2025	5.993.563	5.993.563
DIVINFOOD	Co-constructing interactive short and mid-tier food chains to value agrobiodiversity in healthy plant-based food	RIA - Research and Innovation action	01-03-2022	28-02-2027	5.999.858	5.999.858
				TOTAL	23.991.393	23.991.393

Table 4: Projects including legumes in legume-based crop rotations, grassland systems or cover crops

ACRONYM	TITLE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON 2020						
SOLACE	Solutions for improving Agroecosystem and Crop Efficiency for water and nutrient use	RIA - Research and Innovation action	01-03-2017	30-09-2022	7.192.262	6.000.000
SUPER-G	Developing SUstainable PERmanent Grassland systems and policies	RIA - Research and Innovation action	01-06-2018	29-02-2024	9.994.997	9.994.997
INCREASE	Intelligent Collections of Food Legumes Genetic Resources for European Agrofood Systems	RIA - Research and Innovation action	01-05-2020	30-04-2026	8.826.825	7.000.000

ACRONYM	TITLE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON 2020						
				TOTAL	26.014.084	22.994.996

Table 5: Project on development of feeding techniques to optimize the potential of the feed and the animal, or the use of local feed for monogastrics

ACRONYM	TITLE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON 2020						
Feed-a-Gene	Adapting the feed, the animal and the feeding techniques to improve the efficiency and sustainability of monogastric livestock production systems	RIA - Research and Innovation action	01-03-2015	29-02-2020	9.615.109	8.999.544
MarkEfficiency	Digestive and nutritional indicators of feed efficiency in cattle fed forage-based diets	MSCA-IF-EF-ST - Standard EF	01-09-2015	31-08-2017	173.076	173.076
MultiCoop	Multidisciplinary approach to strengthen cooperation and establish novel platform for comprehensive assessment of food and feed safety	CSA - Coordination and support action	01-01-2016	31-12-2018	997.944	997.943
Sustainbeef	Co-definition and evaluation of sustainable beef farming systems based on resources non edible by humans	SusAn ERA-NET **	01-09-2017	31-08-2020	N/A	934.000
SusPig	Sustainability of pig production through improved feed efficiency	SusAn ERA-NET **	01-10-2017	31-12-2020	N/A	956.000

ACRONYM	TITLE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON 2020						
Ok-NetEcoFeed	Organic Knowledge Network on Monogastric Animal Feed	CSA - Coordination and support action	01-01-2018	31-03-2021	1.990.369	1.990.369
NanoFEED	Nanostructured carriers for improved cattle feed	MSCA-RISE (Research and Innovation Staff Exchange)	01-02-2018	30-04-2023	733.500	733.500
SmartCow	SmartCow: an integrated infrastructure for increased research capability and innovation in the European cattle sector	RIA - Research and Innovation action	01-02-2018	30-04-2022	4.999.944	4.999.944
PROTON	Recycling industrial CO2 into cost-competitive protein for high-value, sustainable animal feed	SME-2b - SME Instrument (grant only and blended finance)	01-10-2020	30-09-2023	3.558.315	249.821
				TOTAL	22.068.256	20.034.197

** The contribution of the projects funded by ERA-NETs is provided by the participating funders through a virtual common pot model with EU top-up.

ACRONYM	TITLE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON EUROPE						
Error! Hyperlink reference not valid.	Animal nutritional requirements and nutritional value of feed under different production management conditions	RIA - Research and Innovation action			7.000.000	7.000.000
				TOTAL	7.000.000	7.000.000

The list of Horizon 2020 projects given in Table 2 sum up a total EU CONTRIBUTION

(EUR) of **EUR 20 million**. This figure excludes the projects that have been funded within the two ERA-NETs (SusAn, FACCE-ERA-GAS), which represent a value of transnational calls over EUR 30 million, focusing on enhancing the environmental, social and economic dimensions of sustainable of animal production, and reducing the agricultural emissions, not least in livestock production systems.

Table 6: Projects addressing the connection with microbial ecosystems

ACRONYM	TITLE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON 2020						
RumenPredict	Predicting appropriate GHG mitigation strategies based on modelling variables that contribute to ruminant environmental impact	FACCE-JPI ERA-GAS	01-09-2017	30-12-2020	2.030.000	1.592.000
METHLAB	Refining direct fed microbials (DFM) and silage inoculants for reduction of methane emissions from ruminants	FACCE-JPI ERA-GAS	01-10-2017	30-09-2020	1.384.000	1.036.000
CIRCLES	Controlling mIcRobiomes CircuLations for bETter food Systems	IA - Innovation action	01-11-2018	31-10-2024	11.032.266	9.999.965
SIMBA	Sustainable innovation of microbiome applications in food system	IA - Innovation action	01-11-2018	31-10-2023	10.373.932	10.000.000
MicrobiomeSupport	Towards coordinated microbiome R&I activities in the food system to support (EU and) international bioeconomy goals	CSA - Coordination and support action	01-11-2018	31-10-2022	3.590.466	3.520.466
HoloFood	Holistic solution to improve animal food production through deconstructing the biomolecular interactions between feed, gut microorganisms and animals in relation to performance parameters	IA - Innovation action	01-01-2019	31-12-2022	10.825.325	9.863.093
MASTER	Microbiome Applications for Sustainable food systems through Technologies and EnteRprise	IA - Innovation action	02-01-2019	01-07-2023	12.136.476	10.950.172
3D-Omics	Three-dimensional holo'omic landscapes to unveil host-microbiota interactions shaping animal production	RIA - Research and Innovation action	01-09-2021	31-08-2025	10.073.540	9.994.415

ACRONYM	TITLE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON 2020						
Hololuminant	Understanding microbiomes of the ruminant holobiont.	RIA - Research and Innovation action	01-10-2021	30-09-2026	10.895.021	9.724.763
				TOTAL	72.341.026	66.680.875

ACRONYM	TITLE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON EUROPE						
HealthFerm	Innovative pulse and cereal-based food fermentations for human health and sustainable diets	RIA - Research and Innovation action	01-09-2022	31-08-2026	11.303.945	11.303.945
TRIBIOME	Advanced tools for integration and synergistic inTeRconnection of microBIOMES in resilient food systems	RIA - Research and Innovation action	01-01-2023	31-12-2026	4.914.724	4.914.724
WHEATBIOME	Unravelling the potential of the wheat microbiome for the development of healthier, more sustainable and resilient wheat-derived food & feed products	HORIZON-AG (Action Grant Budget-Based)	01-01-2023	31-12-2026	5.060.548	5.060.548
Domino	Harnessing the microbial potential of fermented foods for healthy and sustainable food systems	RIA - Research and Innovation action	01-03-2023	29-02-2028	10.878.273	10.815.148
				TOTAL	32.157.489	32.094.364

Projects in table 3 address the connection host-feed-microbiome (animal considered as a system) to improve animal breeding practices and develop host-tailored feeds. The total EU contribution is of about **EUR 39,6 million**.

Table 7: Projects on the efficacy and sustainability of alternatives to antimicrobials for the management of animal infectious diseases.

ACRONYM	TITLE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON 2020						
SIRCAH	Secretariat for the International Research Consortium on Animal Health	CSA - Coordination and support action	01-10-2016	30-09-2022	3.585.375	2.999.438
One Health EJP	Promoting One Health in Europe through joint actions on foodborne zoonoses, antimicrobial resistance and emerging microbiological hazards	COFUND-EJP	01-01-2018	30-09-2023	90.000.000	44.999.000
HealthyLivestock *	Tackling Antimicrobial Resistance through improved livestock Health and Welfare	RIA - Research and Innovation action	01-09-2018	28-02-2023	6.982.238	4.993.710
PHAGOVET	A cost-effective solution for controlling Salmonella and Escherichia coli in poultry production	IA - Innovation action	01-11-2018	31-10-2022	3.195.764	2.611.208
DISARM *	Disseminating Innovative Solutions for Antibiotic Resistance Management	CSA - Coordination and support action	01-01-2019	30-06-2022	1.999.580	1.999.580
RAID	Veterinary Decision Support System by Rapid Bacterial Infection Detection	SME-2 - SME instrument phase 2	01-04-2019	31-03-2021	2.520.625	1.764.438
ROADMAP*	Rethinking Of Antimicrobial Decision-systems in the Management of Animal Production	RIA - Research and Innovation action	01-06-2019	31-05-2023	6.052.836	5.999.753
AVANT *	Alternatives to Veterinary ANTImicrobials	IA - Innovation action	01-01-2020	31-12-2024	6.537.034	5.999.905
BM-FARM *	Biomarkers and microbiome in farms for antimicrobial resistance management	ERA.NET ICRAD **	01-02-2021	31-01-2024	N/A	N/A

ACRONYM	TITLE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON 2020						
SEFASI *	Selecting Efficient Farm-level Antimicrobial Stewardship Interventions from a one health perspective	JPIAMR ERA-NET **	01-01-2022	31-12-2024	N/A	1.023.147
ENVIRE *	Interventions to control the dynamics of antimicrobial resistance from chickens through the environment	JPIAMR ERA-NET **	04-01-2022	31-03-2025	N/A	1.370.398
Phage-Stop-AMR *	Phage Therapy to Reduce AMR Enterobacteria Spread from a One Health Perspective	JPIAMR ERA-NET **	04-01-2022	31-03-2025	N/A	1.403.468
Phage-Ex *	Use of phage applications to combat MRSA at the sow-piglet interface to reduce exposure of staff and contamination of the environment	JPIAMR ERA-NET **	04-01-2022	31-03-2025	N/A	862.469
ICONIC *	Ionophore coccidiostats: risk of CO-selection of antimicrobial resistance - Clinical impact and intervention strategies	JPIAMR ERA-NET **	04-01-2022	31-03-2025	N/A	1.859.058
FARM-CARE *	Farm interventions to control antimicrobial resistance	JPIAMR ERA-NET **	05-01-2022	30-04-2025	N/A	1.376.893
				TOTAL	120.873.450	79.262.464

ACRONYM	TITLE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON EUROPE						
<u>EUPAHW</u>	European partnership on animal health and welfare	<u>CORDIS Reference</u>	01-01-2024	31-12-2030	360M in total (7 years)	180M in total (7 years), of which 52.7M for the first two years

Over EUR 170 million are committed in projects addressing animal health & welfare.

* The projects indicated with an asterisk in this table deal specifically with AMR. The other projects also address AMR (Antimicrobial Resistance) among other activities.

** The contribution of the projects funded by ERA-NETs is provided by the participating funders through a virtual common pot model with EU top-up.

Table 8: Projects on breeding and feeding practices

ACRONYM	TITLE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON 2020						
EuroSheep	European Network for interactive and innovative knowledge exchange on animal health and nutrition between the sheep industry actors and stakeholders	CSA - Coordination and support action	01-01-2020	30-06-2023	1.990.735	1.990.735
				TOTAL	1.990.735	1.990.735

ACRONYM	TITLE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON EUROPE						
Re-Livestock	Facilitating innovations for resilient livestock farming systems	HORIZON-AG (Action Grant Budget-Based)	01-09-2022	31-08-2027	9.560.959	9.560.959
				TOTAL	9.560.959	9.560.959

The relationship between **animal feed and feeding** and **health and welfare** is further investigated as well as an integrated approach that combines solutions based on **breeding and feeding practices** in order to reduce livestock emission and pollutants.

Table 9: Projects on the sustainable management of grazing-based and mixed farming

ACRONYM	TITLE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON 2020						
EuroDairy	A Europe-wide thematic network supporting a sustainable future for EU dairy farmers	CSA - Coordination and support action	01-02-2016	31-01-2019	1.997.238	1.997.238
SheepNet	Sharing expertise and experience towards sheep productivity through networking	CSA - Coordination and support action	01-11-2016	31-10-2019	1.995.289	1.991.290
Inno4Grass	Shared Innovation Space for Sustainable Productivity of Grasslands in Europe	CSA - Coordination and support action	01-01-2017	31-12-2019	1.999.999	1.999.999
SUPER-G	Developing Sustainable Permanent Grassland systems and policies	RIA - Research and Innovation action	01-06-2018	31-05-2023	9.994.997	9.994.997
GO-GRASS	Grass-based circular business models for rural agri-food value chains	IA - Innovation action	01-10-2019	30-09-2023	10.385.223	9.970.773
Error! Hyperlink reference not valid.	Strategies to mitigate GHG emissions from pasture based sheep systems	Joint Call ERA-NETs (FACCE ERA-GAS, SusAn, ICT-AGRI 2) **	01-10-2019	30-09-2023	N/A	1.497.000
STARGATE	Resilient farming by adaptive microclimate management	RIA - Research and Innovation action	01-10-2019	30-09-2023	6.994.405	6.994.405
SusCatt	Increasing productivity, resource efficiency and product quality to increase the economic competitiveness of forage and grazing based cattle production systems	SusAn ERA-NET **	01-10-2019	30-09-2023	N/A	1.497.000
Bovine	Beef innovation network Europe	CSA - Coordination and support action	01-01-2020	31-12-2022	1.999.966	1.999.966
MIXED	Multi-actor and transdisciplinary development of efficient and resilient MIXED farming and agroforestry-systems	RIA - Research and Innovation action	01-10-2020	30-09-2024	6.999.509	6.999.509

ACRONYM	TITLE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON 2020						
AGROMIX	AGROforestry and MIXed farming systems - Participatory research to drive the transition to a resilient and efficient land use in Europe	RIA - Research and Innovation action	01-11-2020	31-10-2024	6.999.256	6.999.256
Code Re-farm	Consumer-driven demands to reframe farming systems	RIA - Research and Innovation action	01-05-2021	31-10-2024	5.999.418	5.999.418
				TOTAL	55.365.299	57.940.849

** The contribution of the projects funded by ERA-NETs is provided by the participating funders through a virtual common pot model with EU top-up.

ACRONYM	TITLE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON EUROPE						
DairyMix	Multi-criteria assessment, decision support and management tools for sustainable circular mixed farming systems for dairy production	Joint Call ERA-NETs (FACCE ERA-GAS, SusAn, ICT-AGRI-FOOD, SusCrop)	01-03-2022	28-02-2025	2.112.000	1.729.000
REFOREST	Agroforestry at the forefront of farming sustainability in multifunctional landscapes in Europe	HORIZON-AG (Action Grant Budget-Based)	01-07-2022	31-06-2026	3.333.691	3.333.691
Agroecology-TRANSECT	Trans-disciplinary approaches for systemic economic, ecological and climate change transitions	HORIZON-AG (Action Grant Budget-Based)	01-09-2022	31-08-2026	6.398.588	6.398.588

ACRONYM	TITLE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON EUROPE						
Grazing4AgroEcology	European network to promote grazing and to support grazing-based farms on their economic and ecologic performances as well as on animal welfare	HORIZON-AG (Action Grant Budget-Based)	01-09-2022	28-02-2026	2.999.998	2.999.998
STEP UP	Sustainable Livestock Systems Transition and Evidence Platform for Upgrading Policies	RIA - Research and Innovation action	01-01-2024	31-12-2027	N/A	4.311.559
Open call	Agro-pastoral/outdoor livestock systems and wildlife management	RIA - Research and Innovation action			5.000.000	5.000.000
Open call	Towards sustainable livestock systems: European platform for evidence building and transitioning policy	RIA - Research and Innovation action			5.000.000	5.000.000
CoCo	Co-creating coexistence: Advancing policies, practices, and stakeholder engagement for integrating wildlife and livestock into sustainable multi-functional landscapes in Europe	RIA - Research and Innovation action	tbd	rbd	N/A	4.876.764
				TOTAL	24.844.276	33.649.600

Research is also helping to improve the sustainable management of permanent grasslands and enhance the profitability of grazing livestock systems. The EC contribution to research on mixed farming and on grasslands systems amounts to more than EUR 60 million.

The integration of livestock and crop is among the important elements to boost the implementation of sustainable farming practices such as agro-ecology. Other H2020 projects already mentioned in above tables (LEGVALUE and TRUE) are carrying out research activities on the potential of legume production and the development of value chains for food and feed, and on identifying the best “transition paths” to increase sustainable legume cultivation and consumption across Europe.

Table 10: Projects on innovative circular approaches such as manure management

Another important point is the implementation of circularity. EC is funding R&I projects on innovative **circular approaches** that enable sustainable use of soil water resources, nutrients and residues/wastes. As an example, results from running projects on **manure management** (with a total contribution of about EUR 20 million in H2020) or **bio-refineries** will lead to further improve ways of valorising and using residues and by-products by farms e.g. **feed** for livestock, fertiliser from manure.

ACRONYM	TITLE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON 2020						
FREEWALK	Develop economic sound free walk farming systems elevating animal welfare, health and manure quality, while being appreciated by society	SUSAN ERA-NET **	01-06-2017	31-03-2021	N/A	N/A
Treat2ReUse	Treatment of Animal Waste to Reduce Gaseous Emissions and Promote Nutrient Reuse	MSCA-IF-EF-ST - Standard EF	18-02-2019	21-01-2022	212.195	212.195
M4Models	Manure management for methane mitigation - Improved inventory modelling to support policy actions	Joint Call ERA-NETs (FACCE ERA-GAS, SusAn, ICT-AGRI 2) **	01-12-2019	31-11-2022	N/A	1.017.000
CCCfarming	Climate Care Cattle Farming Systems	Joint Call ERA-NETs (FACCE ERA-GAS, SusAn, ICT-AGRI 2) **	01-01-2020	31-12-2023	N/A	1.726.000
FERTIMANURE	Innovative nutrient recovery from secondary sources – Production of high-added-value fertilisers from animal manure	IA - Innovation action	01-01-2020	31-12-2023	8.380.524	7.784.512

ACRONYM	TITLE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON 2020						
MELS	Mitigating greenhouse gas emissions from livestock systems	Joint Call ERA-NETs (FACCE ERA-GAS, SusAn, ICT-AGRI 2) **	01-01-2020	31-12-2022	N/A	1.069.900
RES4LIVE	Energy Smart Livestock Farming towards Zero Fossil Fuel Consumption	IA - Innovation action	01-10-2020	30-09-2024	5.815.207	4.998.555
INTEGRITY	Integrated crop-ruminant livestock systems as a strategy to increase nutrient circularity and promote sustainability in the context of climate change	Joint Call ERA-NETs (FACCE ERA-GAS, SusAn, ICT-AGRI-FOOD, SusCrop)	01-03-2022	28-02-2025	2.268.000	1.558.000
ReLive	Back to the Future: reintegrating land and livestock for greenhouse gas mitigation and circularity	Joint Call ERA-NETs (FACCE ERA-GAS, SusAn, ICT-AGRI-FOOD, SusCrop)	01-03-2022	28-02-2025	2.958.000	2.531.000
				TOTAL	19.633.925	20.897.162

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ACRONYM	TITLE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON EUROPE						
ECONUTRI	Innovative concepts and technologies for ECOlogically sustainable NUTRIent management in agriculture aiming to prevent, mitigate and eliminate pollution in soils, water and air	IA - Innovation action	01-11-2022	30-04-2026	5.979.716	5.560.916
AgriLoop	Pushing the frontier of circular agriculture by converting residues into novel economic, social and environmental opportunities	RIA - Research and Innovation action	01-12-2022	30-11-2026	7.825.298	7.825.298
trans4num	Transformation for sustainable nutrient supply and management	HORIZON-AG (Action Grant Budget-Based)	01-12-2022	30-11-2026	5.034.396	4.617.123
Open call	Optimisation of manure use along the management chain to mitigate GHG emissions and minimize nutrients/contaminants dispersion in the environment	RIA - Research and Innovation action			N/A	N/A
NUTRITIVE	Innovative decision-making tool for defining the most suitable manure management strategies to achieve a sustainable livestock farming system during the whole value chain	RIA - Research and Innovation action	01-06-2024	31-05-2028	6.996.507	6.996.507
				TOTAL	25.835.917	24.999.844

Table 11: Projects on alternative proteins, including cultured meat, and on dietary shifts

ACRONYM	TITLE	PRODUCT	SCOPE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON 2020								
SUSFOOD2	ERA-Net Cofund on Sustainable Food production and consumption (SUSFOOD2)	Several	food	ERA-NET-Cofund	01-01-2017	30-06-2022	14.269.217€	4.708.842€
MiAlFeedIngredients	Innovative Microalgae Feed Ingredient to improve Animal Health for a more sustainable Food Chain	Algae	feed	SME-1 - SME instrument phase 1	01-02-2017	31-07-2017	71.429€	50.000€
Cultured Beef	A cost-effective production process to open worldwide the cultured meat market	Cultured meat	food	SME-1 - SME instrument phase 1	01-12-2017	31-05-2018	71.429€	50.000€
NEXTGENPROTEINS	Bioconversion of underutilized resources into next generation proteins for food and feed	Several	food&feed	IA - Innovation action	01-10-2019	30-09-2023	9.257.320€	7.985.150€
SUSINCHAIN	Sustainable Insect Chain	Insect	food&feed	IA - Innovation action	01-10-2019	30-09-2023	8.685.297€	8.685.297€
ProFuture	Microalgae protein ingredients for the food and feed of the future	Algae	food&feed	IA - Innovation action	01-10-2019	30-09-2023	8.685.297€	7.775.109€

ACRONYM	TITLE	PRODUCT	SCOPE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON 2020								
SMART PROTEIN	Protein-rich legumes and quinoa in the plant-based food alternatives spotlight	Plant protein	food	IA - Innovation action	01-10-2019	30-09-2023	9.607.844€	8.179.215€
SUSTAINABLEMEAT	Addressing the rising global meat demand while protecting the environment: developing Europe's first competitive "cell-based meat" product	Cultured meat	food	SME-1 - SME instrument phase 1	01-12-2019	31-07-2020	72.429€	50.000€
FoodSHIFT2030	Food System Hubs Innovating towards Fast Transition by 2030	Plant protein	food	IA - Innovation action	01-01-2020	31-12-2023	8.249.472€	7.493.647€
SEASOLUTIONS	Seaweeds and seaweed-ingredients to reduce enteric methane emissions from pasture-based sheep, cattle and dairy cows	Algae	feed	Joint Call ERA-NETs (FACCE ERA-GAS, SusAn, ICT-AGRI 2) **	06-01-2020	05-01-2023	N/A	1.969.000€

ACRONYM	TITLE	PRODUCT	SCOPE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON 2020								
ALEHOOP	Biorefineries for the valorisation of macroalgal residual biomass and legume processing by-products to obtain new protein value chains for high-value food and feed applications	Several	food&feed	IA - Innovation action	01-06-2020	31-05-2024	6.718.370€	5.140.274€
Meat4all	Industrialization and commercialization of a competitive, sustainable and consumer oriented alternative animal protein source	Cultured meat	food	IA - Innovation action	01-08-2020	31-01-2023	2.724.231€	2.724.231€
CCMeat	Barley Biofarmed Growth Factors to Make Cell Cultured Meat an Affordable Reality	Cultured meat	food	SME-2b - SME Instrument (grant only and blended finance)	01-10-2020	30-09-2022	3.809.356€	2.500.000€
PROTEIN2FOOD	Development of high quality food protein through sustainable production and processing	Plant protein	food	RIA - Research and Innovation action	01-03-2025	20-02-2020	8.817.638€	8.817.638€
TOTAL							81.039.328	66.128.402

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ACRONYM	TITLE	PRODUCT	SCOPE	FUNDING SCHEME	START	END	TOTAL BUDGET (EUR)	EU CONTRIBUTION (EUR)
HORIZON EUROPE								
GIANT LEAPS	Reshaping nutrition across Europe. Accelerating the dietary shift from animal based to alternative dietary proteins	Several	food	RIA - Research and Innovation action	01-09-2022	31-08-2026	10.347.863	10.347.863
LIKE A PRO	From niche to mainstream - alternative proteins for everybody and everywhere	Several	food	IA - Innovation action	01-11-2022	31-10-2026	13.909.093	11.999.660
FEASTS	Fostering European cellular Agriculture for Sustainable Transition Solutions	Several	food	RIA - Research and Innovation Action	01-12-2023	30-11-2026	6.999.411	6.999.411
Closed call	Impact of the development of novel foods based on alternative sources of proteins (HORIZON-CL6-2024-FARM2FORK-01-7)	Several	food	RIA - Research and Innovation action	October 2024		9.000.000	4.500.000
						TOTAL	40.256.367	33.846.934

Table 12: EIP-AGRI Focus Groups contributing to the reduction of the EU dependency on imported plant protein

EIP-AGRI FOCUS GROUP	LINK TO EU CAP NETWORK NETWORK
Grazing for carbon	https://ec.europa.eu/eip/agriculture/en/focus-groups/grazing-carbon.html
Mixed Farming Systems: Livestock/Cash crops	https://ec.europa.eu/eip/agriculture/en/content/focus-groups/mixed-farming-systems-livestockcash-crops.html
New feed for pigs and poultry	https://ec.europa.eu/eip/agriculture/en/focus-groups/new-feed-pigs-and-poultry.html
Profitability of permanent grassland	https://ec.europa.eu/eip/agriculture/en/focus-groups/profitability-permanent-grassland.html
Protein crops	https://ec.europa.eu/eip/agriculture/en/content/focus-groups/protein-crops.html
Sustainable beef production systems	https://ec.europa.eu/eip/agriculture/en/focus-groups/sustainable-beef-production-systems.html
Reducing emissions from cattle farming	https://ec.europa.eu/eip/agriculture/en/focus-groups/reducing-emissions-cattle-farming.html
Robust and resilient dairy production systems	https://ec.europa.eu/eip/agriculture/en/content/focus-groups/robust-and-resilient-dairy-production-systems.html
High Nature Value farming (alternative feed source)	https://ec.europa.eu/eip/agriculture/en/content/FGHNV.html
Carbon storage arable farming (legumes)	https://ec.europa.eu/eip/agriculture/en/focus-groups/moving-source-sink-arable-farming.html
Organic farming (legumes)	https://ec.europa.eu/eip/agriculture/en/content/organic-farming-optimising-arable-yields.html