

KapPA: Towards de-medicalisation of pigs through nutritional strategies. Alternatives to antibiotics/antimicrobials

Summary

Today there is a need to address the de-medicalisation of feed in pig production at the weaning stage. However, withdrawing zinc oxide and amoxicillin in such a delicate transitional phase will most likely imply a reduction in productivity due to an increase in both enteric and respiratory pathologies. It is therefore necessary to address this problem using a multidisciplinary approach that provides the sector with tools to predict/control the health status of animals and establishes guidelines for action to deal with pathogenic infections in order to maintain productivity and animal welfare.

Objectives

The overall objective of the project is to move towards the de-medicalisation of feed in the weaning phase in pigs through prevention, control of pathogen prevalence and administration of alternatives to antibiotic/antimicrobial resistance-generating products. Key to this goal is the control of inflammation by altering the NF-kappa(κ)B metabolic pathway.

Description of the actions carried out in the project

The work plan is structured around four distinct phases that encompass the different tasks that enable progress towards validating the hypotheses and the achieving the objectives set out in the project. The first phase includes nutritional studies on the suitability of functional foods/additives on farms with a high health status; in the second phase, studies demonstrating the reduction of the incidence of pathologies in farms with low health status will be carried out; the third phase will characterise the modes of action of the successful strategies demonstrated in the previous phases in the face of a pathogenic challenge; and the last phase will validate the results obtained at the commercial level.

Final results and practical recommendations

The first phase of the work plan aims to demonstrate that the different diets and additives tested do not cause a significant reduction in the growth of the animals, even improving it. This will verify that the animals perform optimally, that the tested products and strategies are safe to use orally and that there is no rejection of the feed because of its palatability.

Phase 2 plans to characterise the ability of different diets and treatments (and synergies) to reduce the incidence of *E. coli* and *S. suis* infections. It is expected that, in this case, the results will be significant since a farm where the incidence of these pathologies is recurrently high will be used.

Phase 3 will characterise the mode of action of the tested products and diets. The induced effects on host, pathogen and microbiota will be demonstrated to scientifically explain how the incidence of these diseases is reduced.

Finally, phase 4 will be carried out to validate the efficacy of the treatment optimised in the previous phases in the field. These results will be obtained on a large scale (20 livestock farms), which will allow the project to reliably demonstrate the ability to reduce the incidence of these diseases and therefore that it is possible to de-medicalise the weaning phase of piglets by controlling the immune response, reducing bacterial pathogenicity and favouring beneficial microbiota.

Leader of the Operational Group

ORGANISATION: CORPORACIÓ ALIMENTÀRIA DE GUISSONA, SA

Coordinator of the Operational Group

ORGANISATION: CATALAN ASSOCIATION OF COMPOSITE FOOD MANUFACTURERS

Other members of the Operational Group (grant recipients)

ORGANISATION: SELECCIÓ BATALLÉ, SA

Other members of the Operational Group (not recipients of the grant)

ORGANISATION: IRTA - Institute of Agrifood Research and Technology

Subject area(s) of application

- Agricultural production system
- Agricultural practice
- Agricultural equipment and machinery
- Livestock farming and animal welfare
- Vegetable production and horticulture
- Landscape / Territorial management
- Pest and disease control
- Fertilisation and nutrient management
- Soil management
- Genetic resources
- Forestry
- Water management
- Climate and Climate Change
- Energy management
- Waste and by-product management
- Biodiversity and environmental management
- Food quality/processing and nutrition
- Supply chain, marketing and consumption
- Competitiveness and agricultural and forestry diversification
- General

Geographical area(s) of application

PROVINCE(S)	REGION(S)
Barcelona, Girona, Tarragona and Lleida	Segarra, Anoia, Urgell...

Dissemination of the project (publications, conferences, multimedia, etc.)

- Information days for feed producers and other related agri-food sectors: Seminar to present the project and Seminar to transfer the project results.
- Informative video on the functioning of the developed IT platform and its application in the feed production sector (during the second year of the project).

- Presentation of new developments and results of the project at conventions, fairs and specific seminars in the sector.
- Publications in sector magazines.
- Use of the dissemination resources available to each of the participating bodies (personalised emails to customers, website, social media, marketing activities, catalogues, commercial documentation, newsletters, etc.).
- Publication of project results in scientific journals specialised in sustainability and climate change.
- Presentations at national and international scientific conferences and congresses.
- Dissemination of the results through the centres and scientific-technological platforms in which the UAB SOSTENIPRA group participates.
- Dissemination through electronic channels aimed at the agri-food sector in which SOSTENIPRA participates.

Project website

www.asfac.org

More information on the project

PROJECT DATES	TOTAL BUDGET	
Starting date: July 2021	Total budget:	€246,441.10
	DACC funding:	€113,967.38
Current status: Under way	EU funding:	€85,975.40
	Own funding:	€46,498.32

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Order ARP/113/2021 of 20 May, approving the regulatory bases for grants for cooperation for innovation by promoting the creation of European Association for Innovation operational groups in the areas of agricultural productivity and sustainability and the execution of innovative pilot projects by those groups, and Resolution ACC/1660/2021, of 27 May, announcing the call for the grant.



Generalitat de Catalunya
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