

In vivo testing of NeoGiANT extract-based formulations in livestock and aquaculture



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Introduction and objectives

In light of emerging antimicrobial resistance (AMR) in humans and animals and increasingly limited efficacy of current conventional antibiotic treatments, extra effort is expected from livestock farmers to use as few antibiotics as possible. In addition, alternative and broader approaches to treat infections are urgently needed. In order to fight AMR and support livestock farmers in keeping animals with fewer or no antibiotics, NeoGiANT offers an innovative solution based on the known potent natural antimicrobial and antioxidant activities of **grape marc extracts**, due to their arsenal of **phytochemicals** e.g. **polyphenols** (PP). The effect of the extract-based **feed formulations** will be evaluated based on health, performance parameters and disease prevention properties in **cattle, swine, poultry and fish**.

Methods and results

After developing and testing the extract (e.g. for stability), premixes are produced and mixed into the **feed** for the *in vivo* trials.

1. Dose finding studies			
Animal species: poultry			
Group 1	Group 2	Group 3	Group 4
N= 100 male Cobb 500	N= 100 male Cobb 500	N= 100 male Cobb 500	N= 100 male Cobb 500
Dose: 200 mg PP / kg feed 	Dose: 750 mg PP / kg feed 	Dose: 1500 mg PP / kg feed 	Control group CONTROL
Objective: Evaluate the efficacy of polyphenols (PP) per dosage based on: <ul style="list-style-type: none"> • Growth performance, daily health, mortality • Precaecal and total-tract nutrient digestibility 			

2. Safety & zootechnical studies			
Per animal species 4 treatment groups: 3 different dosages + 1 control			
1. 	2. 	3. 	4. CONTROL
Objective: Evaluate the efficacy and safety per dosage based on: <ul style="list-style-type: none"> • Growth performance • Microbiome analyses 			

3. Infection studies			
Per animal species 4 treatment groups:			
1. Infected 	2. Infected & supplemented 	3. Supplemented 	4. Control CONTROL
Pathogen: <i>E.Coli</i> O157	Pathogens: <i>E. Coli</i> O147 & O149	Pathogens: Eimeria species + C. Perfringens	Pathogens: <i>Flavobacterium</i> , <i>Saprolegnia</i> , <i>Aeromonas</i> , <i>Neoparamoeba</i>
Objective: Investigate animal health and performance in controlled conditions.			

4. Field trials	
Pig and poultry farms with known history of enteric problems.	
Per farm 2 treatment groups:	
1. Supplemented 	2. Non-supplemented
Objective: Investigate animal health and performance in field conditions.	

Conclusions and implications

Since this project is still in an early stage, we cannot present any conclusions yet. The extract is developed and the *in vivo* trials have started. The target products to be developed will be designed to control a large number of diseases of paramount importance in animal production, both in livestock (cattle, swine, poultry) and aquaculture. As a result, NeoGiANT aims to provide effective alternatives to the main antibiotics used in farmed animals, contributing to the goal of reducing their use. At the same time, the speed of emergence of new AMR will be reduced, and existing antimicrobial resistances will be better controlled.