

## Implementation of a new, environmentally friendly, natural product to prevent farmed snail acariasis

### Summary

The presence at snail farms of mites that debilitate the snails, making it easier for them to succumb to disease and even death, is currently one of the problems that need to be solved to secure the future of more sustainable and profitable snail farms.

Name of the mite: *Riccardoella limacum* (white snail mite).

This mite exclusively affects snails. Furthermore, due to specific conditions in snail farms, involving humidity and high temperatures, their proliferation is greater than in natural settings, so it especially affects farmed snails, lowering yields on farms, as the mite weakens the animal by colonising it.

This innovative project aims to provide a solution to this problem and market a new natural product to prevent acariasis or reduce it as much as possible. This will be a new product based on natural additives which, thanks to a pilot test, will ensure efficacy against mites affecting farmed snails.

### Objectives

The main objective is to obtain a new natural product that, when added to the main feed used at snail farms, prevents acariasis in farmed snails.

Other objectives:

- Improve productivity at snail farms, improving the health of the animals, reducing production costs and increasing the quantity of healthy snails.
- Obviate the use of drugs and pesticides.
- Increase the efficacy of the feed currently used, naturally improving the nutrition of the animals.
- Improve the competitiveness of snail farms in the market, achieving more sustainable and profitable farms.

### Description of the actions carried out in the project

- Pilot test in a real production environment
- Assess both the quality of the snail feed product (as it should be completely harmless to snails, humans and the environment) and improvements in farm productivity.
- Verify that the resulting feed is of the same quality and does not affect other components.
- Sanitary assessments of the initial situation, and partial and final assessments.
- Controls of the quality of the snails in accordance with farm and retail level parameters.

### Final results and practical recommendations

The results the innovation is hoped to achieve will constitute a major advance at all levels, given that it could significantly improve both productivity and sustainability, ensuring long-term continuity of farms and the health quality of the farmed snail end-product.

Whatever the case, the use of drugs or chemical products to ensure snail health will no longer be necessary. It also saves on water, as the farms will not need to be cleaned so often, due to improvements in snail health.

Dosage, based on the mixtures of natural products producing the best results in the evaluations and controls carried out in real production/pilot test situation: 0.3% oxalic acid + 0.04% thymol/kg feed.

According to the evaluations and quality controls, the natural products added at the recommended percentages do not affect the composition of the feed or its final quality.

Because the production cycle of snails on the farm has two different phases, different recommendations are made for the application:

- Maternity/breeding farm application recommendations: One dose applied daily over 5 days, 10 days after activating the snails after hibernation. Then one daily application every 8 weeks.
- Recommendations for application in fattening farms: One dose applied daily for 5 days, 10 days after activating the snail after hibernation. Then daily application every 8 weeks, the last dose being 10 days before snail collection whether for sale or hibernation.

## Conclusions

1. Dose adjustment, most effective mixture: 0.3% oxalic acid + 0.04% thymol/kg feed.
2. Reduction in mortality levels in the maternity/reproduction phases: the presence of mites can be reduced to unnoticeable levels. Absence of mites promotes an improvement in the health of the animals and their immune system becomes more resistant to infectious diseases. Lowering mortality and increasing levels of egg laying, ending in a significant increase in productivity.
3. Significant reduction in mortality levels in the fattening phase, although the mite is not totally eliminated, as these are outdoor facilities. However, by significantly lowering the presence of mites, mortality levels are lowered due to a lower incidence of infectious diseases.
4. Effectiveness in prevention: when the presence of mites is not significant, the use of feed with additives becomes more effective. If the presence of mites is too high and the animal is too weak to consume feed, applying a treatment with additives becomes very difficult.
5. Water consumption on farms is reduced, as more snails are produced from the same amount of water use, thanks to improvements in productivity.

## Leader of the Operational Group

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### 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 and Lleida	Bages, Segrià and Urgell

### Dissemination of the project (publications, seminars, multimedia, etc.)

- Poster presentation of the operational group at the International Livestock Production Fair (FIGAM'19) in Zaragoza.
- Industry and technical conferences: information for the sector.
- Publications in journals: National Association of Snail Farming and Fattening (ANCEC) newsletter.
- Online: [www.caljep.es](http://www.caljep.es), [www.caljep.com](http://www.caljep.com), [www.ancec.org](http://www.ancec.org),

### Project website

<https://caljep.es/projecte-innovador>

**More information on the project**

PROJECT DATES	TOTAL BUDGET
Start date (month-year): June 2018	Total budget: €208,290.00
Completion date (month-year): September 2020	DARP funding: €85,123.80
Current status: Executed	EU funding: €64,216.20
	Own funding: €58,950.00

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