

Essential oil trials on-farm: an alternative treatment for mastitis

Problem

While antibiotics remain necessary treatments against mastitis, their widespread use leads to antibiotic resistance, which constitutes a threat to public health.

Solution

Many essential oils have antibacterial or anti-inflammatory properties. With the help of an advisor, dairy farmers can test alternative mastitis treatments with essential oils following a common protocol established by RELACS.

Outcome

The use of essential oils successfully contributes to the healing of mastitis. They can also be used preventively against mild mastitis. Compared to antibiotics, essential oils have a lower ecological impact and are less expensive (8€ for essential oils /18 € for antibiotics – for one treatment). Regarding labour impact, treatments with essential oils increase working time, from 2 days with antibiotics to 7 with essential oils.

Practical recommendations

Before starting the on-farm trials, farmers receive a training to get familiar with the RELACS protocol for testing essential oils as a cure for mastitis.

The on-farm trials start with selecting cows with light to moderate mastitis, according to criteria defined during the training session. After taking a milk sample for bacteriological analysis, farmers will randomly apply one type of treatment per cow: the essential oil or their usual antibiotic treatment. In the RELACS protocol, the essential oil treatment contained two essential oils (*Litsea cubeba* and *Origanum vulgare*), each mixed with sunflower oil, applied one after the other, directly on the udder.

For the essential oil treatment, farmers apply the treatment twice a day for seven days. However, if the mastitis worsens, the farmers must change the treatment on day two or day five by switching to antibiotics.

Three indicators are used to determine whether the essential oil treatment cured the mastitis: clinical signs, bacteriological analysis of milk and somatic cell count. The evolution of clinical signs of mastitis is monitored throughout the trial. A month after the first application of essential oils, farmers take a milk sample for bacteriological analysis. Farmers keep track of the individual somatic cell count every month during the trial.

Applicability box

Input used

- | | |
|--------------------------------------|---|
| <input type="checkbox"/> Copper | <input type="checkbox"/> Anthelmintics |
| <input type="checkbox"/> Mineral oil | <input checked="" type="checkbox"/> Antibiotics |
| <input type="checkbox"/> Fertilisers | <input type="checkbox"/> Vitamins |

Geographical coverage

Global, tested in France, Spain and UK.

Application time

Possible all year long

Required time

Twice a day for seven days

Period of impact

Within days following the application of the treatment

Equipment

Essential oils, diluted in classic sunflower vegetal oil

Glass bottle to preserve the product

Sprayer on the glass bottle for application on the udder

Best in

Light to moderate mastitis cases, with typical clinical signs, without temperature nor impaired general conditions.

Rapid application of the product after the first signs of infection appear.



Picture 1: Bottle of essential oil (30 mL)

Photo: Edith Chemin, Civam Adage 35

Picture 2: Sprayers used on essential oil bottle to apply the treatment

Photo: Edith Chemin, Civam Adage 35

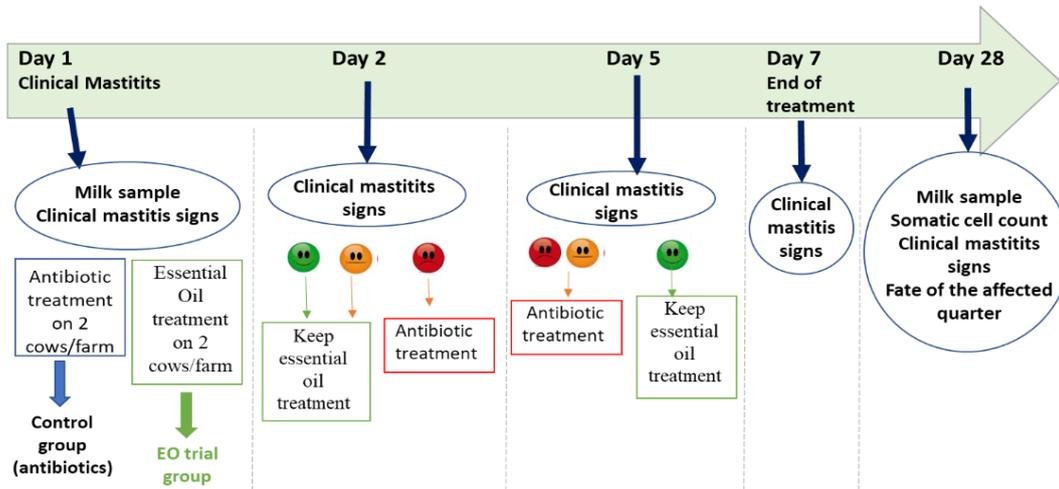


Figure 1: Protocol of the trial (Source: Marlène Guiadeur, IDELE)

On-farm application

System approach

Focusing on a few cows allows the farmers to closely observe the evolution of the mastitis. It also gives them time to reflect on other alternative solutions and preventive measures.

Evaluation

Feedback from farmers regarding the application of essential oil and the evolution of mastitis in treated cows was positive. Statistical analysis showed no significant differences in infection symptoms and bacteriological measurements between the group of cows treated with essential oils and the group of cows treated with antibiotics. Further trials are needed to gather more data on the subject.

Further information

Videos

Report on the essential oils trial programme in livestock carried out by ADAGE 35 (in French): <https://vimeo.com/126890689>

Further readings

Technical guidelines (in French): <https://cloud.inpact35.org/adage/s/lawM7YPNfimidlj>

Weblinks

ADAGE webpage on aromatherapy (in French): <http://www.adage35.org/aromatherapie/>

Check the [Farm Knowledge Platform](#) for more practical recommendations.

About this practice abstract and RELACS

Publishers:

Research Institute of Organic Agriculture FiBL
 Ackerstrasse 113, Postfach 219, CH-5070 Frick
 Phone: +41 62 865 72 72, info.suisse@fibl.org, www.fibl.org

IFOAM Organics Europe
 Rue du Commerce 124, BE-1000 Brussels
 Phone: +32 2 280 12 23, info@organicseurope.bio, www.organicseurope.bio

CIVAM Adage 35
 Pôle InPACT 17, rue du Bas Village, FR-35577 Cesson-Sevigne
 Phone: +33 2 99 77 09 56, contact@adage35.fr, www.adage35.org

Author: Edith Chemin

Editors: Mathilde Calmels, Joelle Herforth-Rahmé, Lauren Dietemann, Bram Moeskops

RELACS: 'Replacement of Contentious Inputs in Organic Farming Systems' (RELACS) builds on results of previous research projects and takes far-advanced solutions forward. As a system approach to sustainable agriculture, organic farming aims to effectively manage ecological processes whilst lowering dependence on off-farm inputs. The RELACS partners will evaluate solutions to further reduce the use of external inputs and, if needed, develop and adopt cost-efficient and environmentally safe tools and technologies.

Project website: www.relacs-project.eu

Social media: Facebook ([RELACSeu](#)) & Twitter ([@RELACSeu](#))

© 2022

