

A GUIDE TO UNDERSTANDING ESSENTIAL OILS FOR CALF SCOURS



Calf scours are a common problem among young calves and can result in significant economic losses. Traditional treatment options have included the use of antibiotics, but with increased resistance and poor public perception, producers are seeking alternative treatment options.

Essential oils have emerged as a natural alternative and have been used for centuries for their powerful antimicrobial properties.

This guide will explore essential oils, why they are a viable alternative for calf scours and how Ralco's **Microfused**[®] process and **NEXUS**[™] formulation approach sets them apart from other essential oil products.

WHAT ARE ESSENTIAL OILS?

Essential oils are the “essence” of a plant, extracted from its leaves, stems, flowers or roots. They serve as the plant's natural defense mechanism against insects, bacteria and fungi. And for centuries, dating back to the Egyptian and Mesopotamian era, essential oils have been used in both human and animal health to promote wellness and support various bodily functions.

Today, essential oils are still used in human and animal health due to their powerful antimicrobial, antioxidant, antiviral, anti-inflammatory and immune regulation properties.

WHY ESSENTIAL OILS FOR LIVESTOCK?

Antibiotics have been commonly fed to livestock for growth and performance or administered to manage health challenges. But their overuse has led to the emergence of antibiotic-resistant bacteria, or superbugs, that pose a threat to animal and human health.

As a result, a growing pressure to limit antibiotics and preserve their effectiveness for humans has led to new regulations in the livestock industry like veterinary feed directives (VFDs) and guidance for industry #263 (GFI 263).

Essential oils are rapidly emerging as a natural alternative, offering a safer and more sustainable solution. However, not all essential oils are created equal. Many essential oil products on the market are formulated to function like antibiotics, killing all bacteria in the gut, good and bad, and can be inconsistent in performance.

To address these challenges, Ralco has developed a unique approach to essential oil formulation and delivery.

HOW DO RALCO ESSENTIAL OILS WORK?

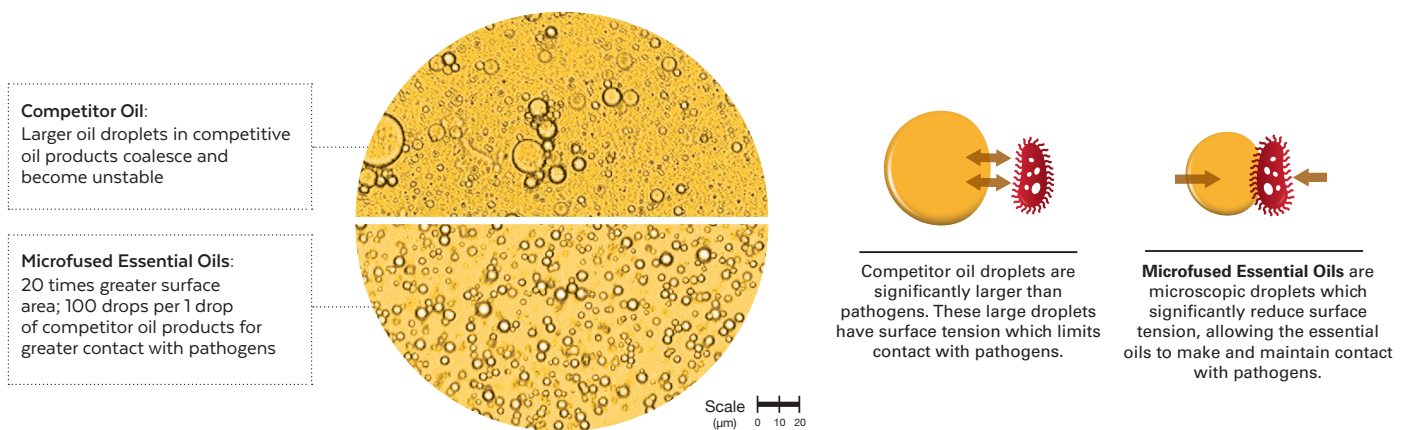
Ralco essential oils work through two primary mechanisms: **Microfused® Essential Oils** and **NEXUS™**.

1. Contacting Pathogens with Microfused Essential Oils

The gut is a mostly liquid environment. And just like oil and water, standard essential oil droplets also struggle to spread evenly in the gut. This uneven dispersion reduces their effectiveness against pathogens.

Because of this, typical essential oils coalesce into large droplets that have a greater surface tension, further limiting contact with pathogens.

That's why Ralco created the **Microfusion** process, which transforms essential oils into microscopic droplets through a special emulsifier, creating 100 times more droplets and 20 times greater surface area in the gut. This greatly reduces the effects of surface tension, allowing the essential oils and pathogens to come very close to each other and maintain contact.



2. A Better Way to Formulate Essential Oils with NEXUS

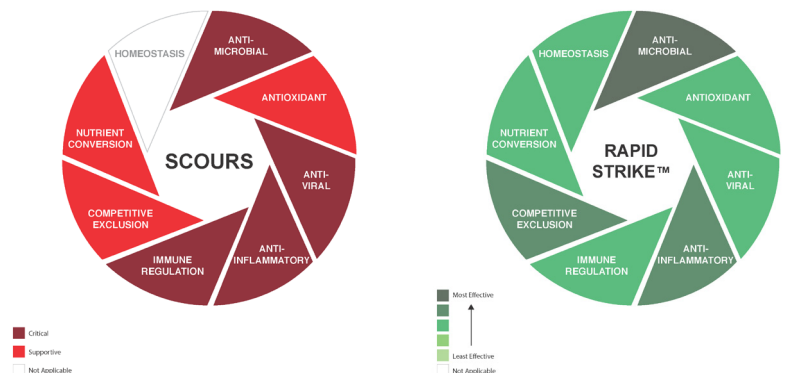
Many essential oil products have one formulation strategy for every health challenge, and they contain one property: antimicrobial. This means they function similar to antibiotics, killing all bacteria in the gut, good and bad.

Rather than a one-size-fits-all approach for formulation, Ralco has mapped the precise essential oil properties needed to help overcome over 80 health challenges in the livestock industry. This targeted formulation approach is called **NEXUS**.

Now, many challenges, including viral, bacterial, enteric, growth inconsistencies, feed conversion, and more, can be supported with proper essential oil formulation.

NEXUS FORMULATION

Ralco has evaluated over 400 essential oils and plant extracts to identify their unique **NEXUS** properties – antiviral, antimicrobial, anti-inflammatory, antifungal, nutrient conversion, homeostasis and more. This in-depth understanding of essential oil properties and the synergy they have when combined together is what makes Ralco products more effective at supporting challenges.



BENEFITS OF RALCO ESSENTIAL OILS ON ANIMAL HEALTH

Because of the unique properties of Ralco essential oils, they offer several benefits to animal health, including:

1. Improved Gut Health

Support the growth of beneficial gut microbes while suppressing harmful bacteria.

2. Enhanced Immune Function

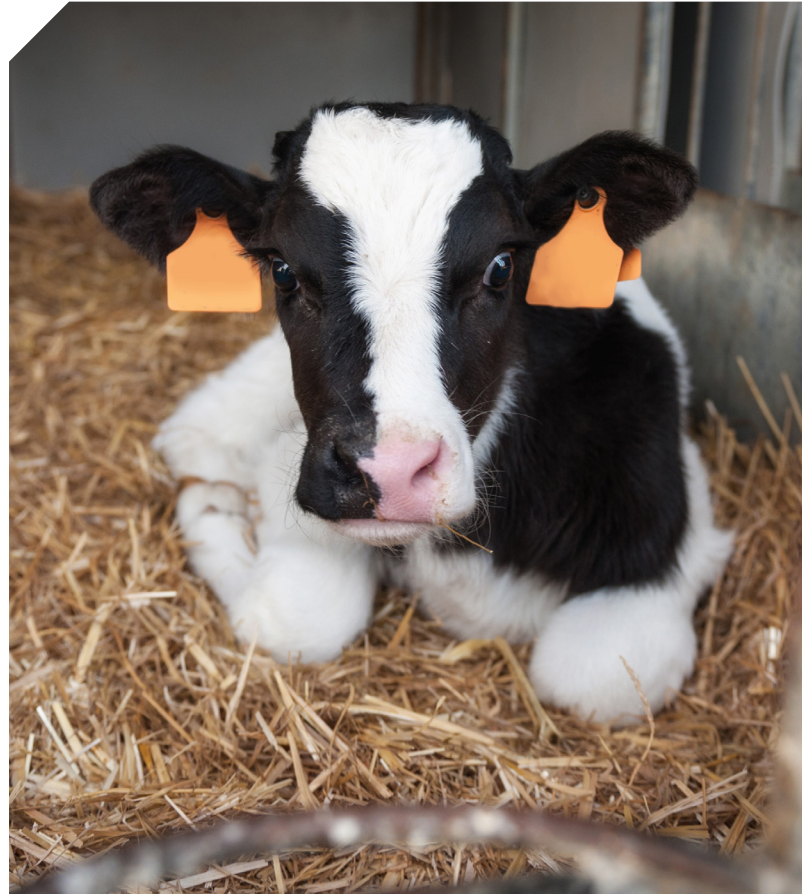
Immune-regulating properties help keep animals healthy and boost disease resistance.

3. Increased Growth and Performance

Antimicrobial and anti-inflammatory properties contribute to improved growth and performance.

4. Reduced Stress

Antioxidant properties help reduce oxidative stress in animals, promoting better overall health and well-being.



RAPID STRIKE™ FOR CALF SCOURS

Rapid Strike is an oral drench that's **NEXUS** formulated to help calves overcome scours. Containing **Microfused Essential Oils**, **Actifibe® Prebiotic** and electrolytes, **Rapid Strike** helps lower pathogen load, improve gut health and restore regular eating and drinking patterns following digestive upset.

Rapid Strike:

- Reduces scours and pathogen load
- Contains electrolytes to support rapid hydration
- Gets sick calves up and drinking and eating
- Supports health during challenges
- Keeps energy focused on growth

Rapid Strike is easy to use, with no prescription required and no refrigeration needed. Administer orally 10 ml (1 pump = 5 ml) per head during digestive stress. Repeat after 24 hours as needed.

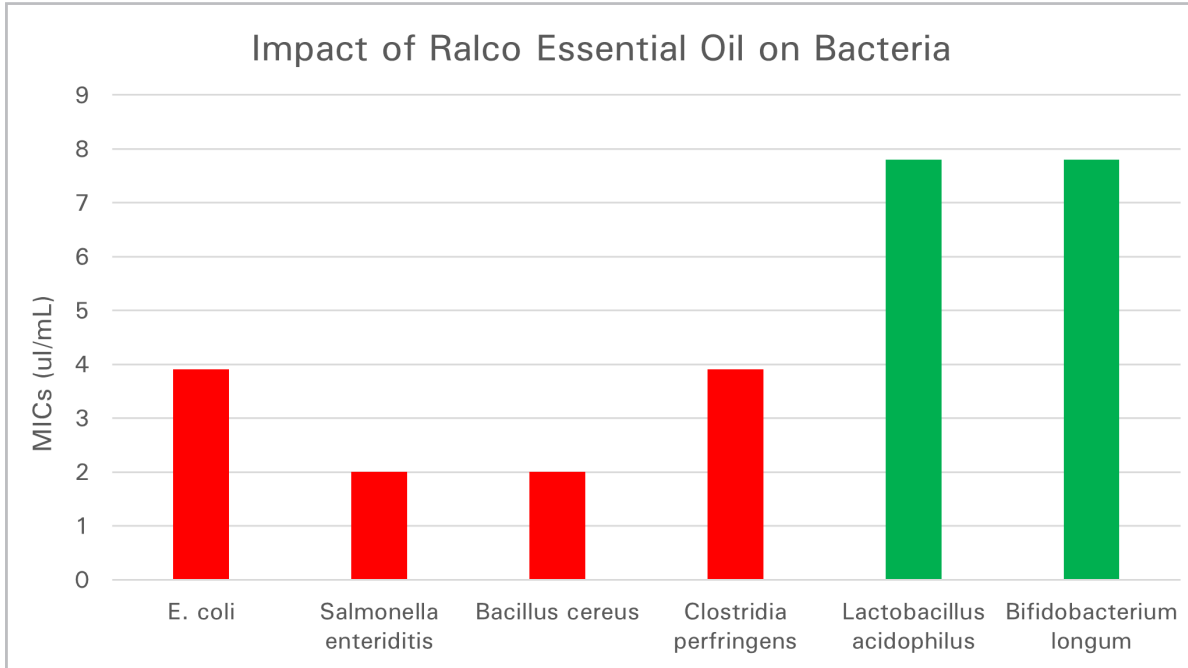


Product#2615-250 // 250 ml Bottle
Product# 2615-60 // 60 ml Bottle

BUY NOW

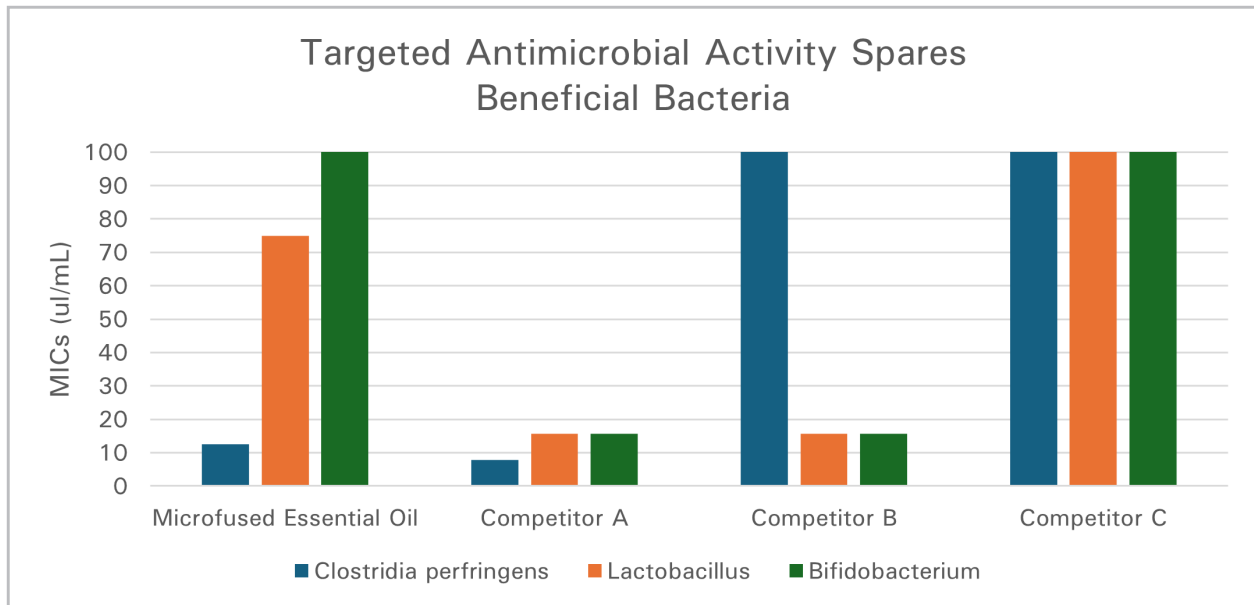
MICROFUSED® ESSENTIAL OILS INHIBITS BACTERIA AND PRESERVES BENEFICIAL BACTERIA

A research study conducted at Southwest Minnesota State University by Dr. Tony Greenfield revealed that **Microfused Essential Oils** effectively decreased the count of four prevalent bacterial strains while maintaining the presence of beneficial bacteria such as *Lactobacilli* and *Bifidobacterium*.



Greenfield, 2018

Another study showed that **Microfused Essential Oils** were more effective than typical essential oil products in reducing bacteria like *Clostridium perfringens* while preserving beneficial bacteria populations of *Lactobacilli* and *Bifidobacterium*.



Greenfield, 2018