

Jefo

Envisioning, testing, manufacturing and implementing innovative feed solutions, globally



Jefocare

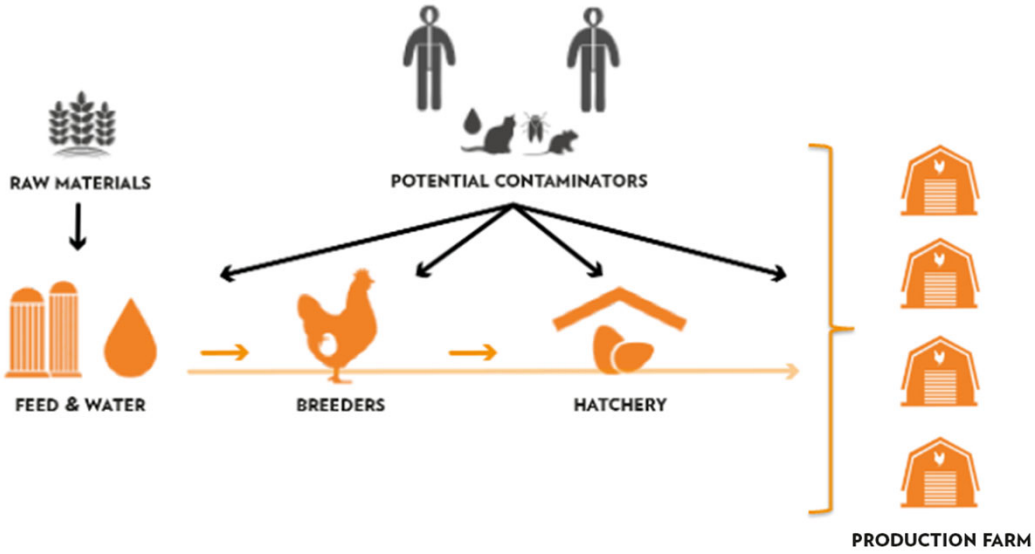
Feed Innovation to Lower *Salmonella* Risk in Poultry

Jefo Innovation Solution

KEY ISSUES

A combination of different strategies is key for a successful program to mitigate *Salmonella* issues

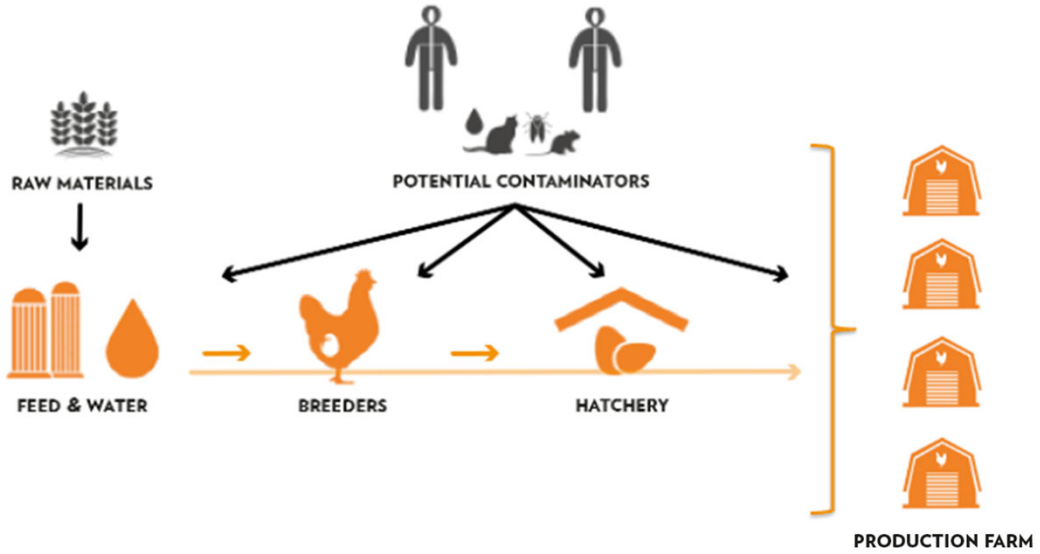
- Biosecurity program
- Vaccination
- Optimal water quality
- Antibiotics (high risk of resistance and changes in the microbiota)
- Nutritional management
  - Avoid raw materials of animal origin
  - Use chemical treatment for feed and feed ingredients
- **Use of feed additives to improve intestinal health and act against *Salmonella*, reducing its proliferation and excretion**



KEY ISSUES

Jefo Innovative Solution: Combined efficacy of feed nutrients delivered to the lower intestinal tract of poultry

> **Use of feed additives to improve intestinal health and act against *Salmonella,* reducing its proliferation and excretion**



JEFO SOLUTION

Reducing the impact of *Salmonella* on laying hens with Jefo Solutions



A combined use of different alternatives holds the most promising solution to promote intestinal health



ENZYMES

BETTER DIGESTION OF CARBOHYDRATES AND PREBIOTIC EFFECT

GROWTH OF BENEFICIAL MICROBIOTA

BETTER DIGESTION OF PROTEIN AND CARBOHYDRATES RESULTS IN FEWER RESIDUES IN THE HINDGUT

RESTRICTED PROLIFERATION OF PATHOGENIC BACTERIA

Jefo P(OA+EO): Jefo Protected Organic Acids + Essential Oils.

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JEFO P(OA+EO)

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IMPROVES INTESTINAL INTEGRITY AND RESTRICTS PROLIFERATION OF PATHOGENIC BACTERIA

Jefo P(OA+EO): Jefo Protected Organic Acids + Essential Oils.

JEFO SOLUTION

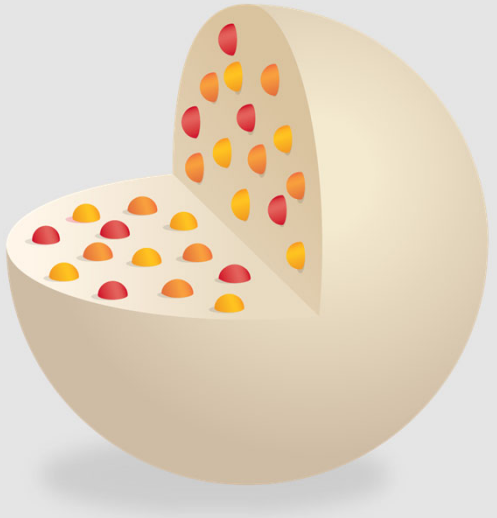
Jefo Protected Organic Acids + Essential Oils - Jefo P(OA+EO)

Selection of organic acids and essential oils

Essential Oils

Organic Acids

Jefo Matrix Technology



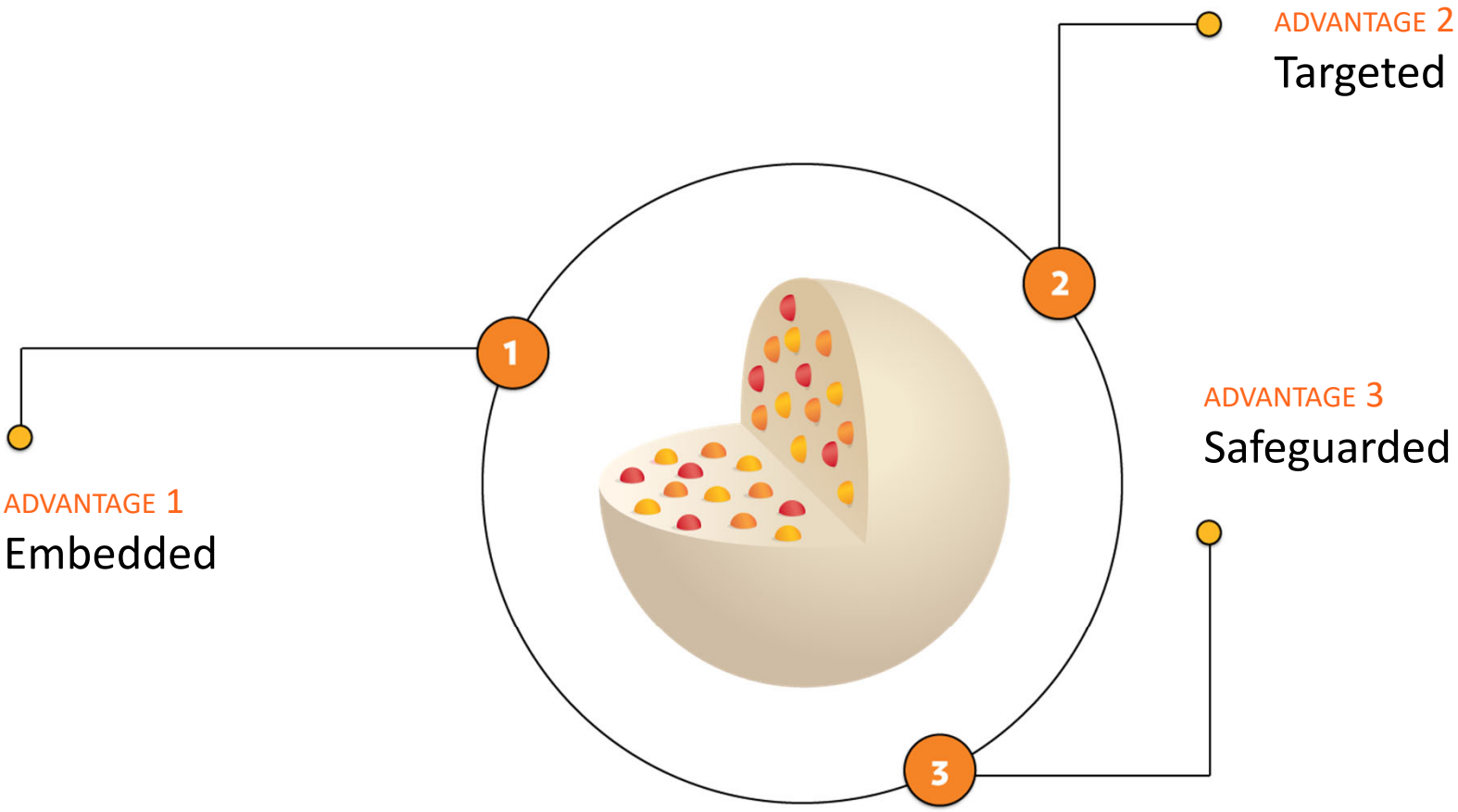
Matrix of triglycerides

Jefo Innovation – Jefo Matrix Technology



JEFO SOLUTION

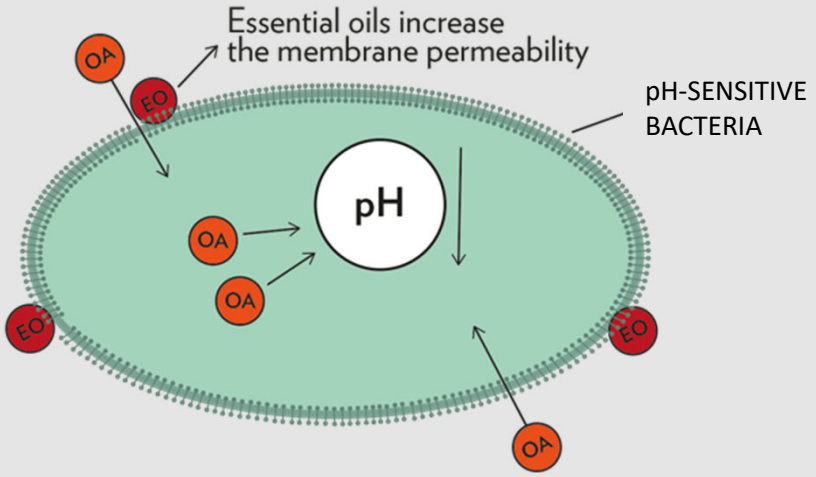
Jefo Matrix Technology



JEFO SOLUTION

Synergism of organic acids + essential oils on pH-sensitive bacteria such as *Salmonella*

pH-sensitive bacteria



OA: organic acids; EO: essential oils.

Effect of organic acids + essential oils

essential oils disrupt the cell membrane

entry facilitated for organic acids

leakage of the important components of the cell

energy consumption to normalize internal pH

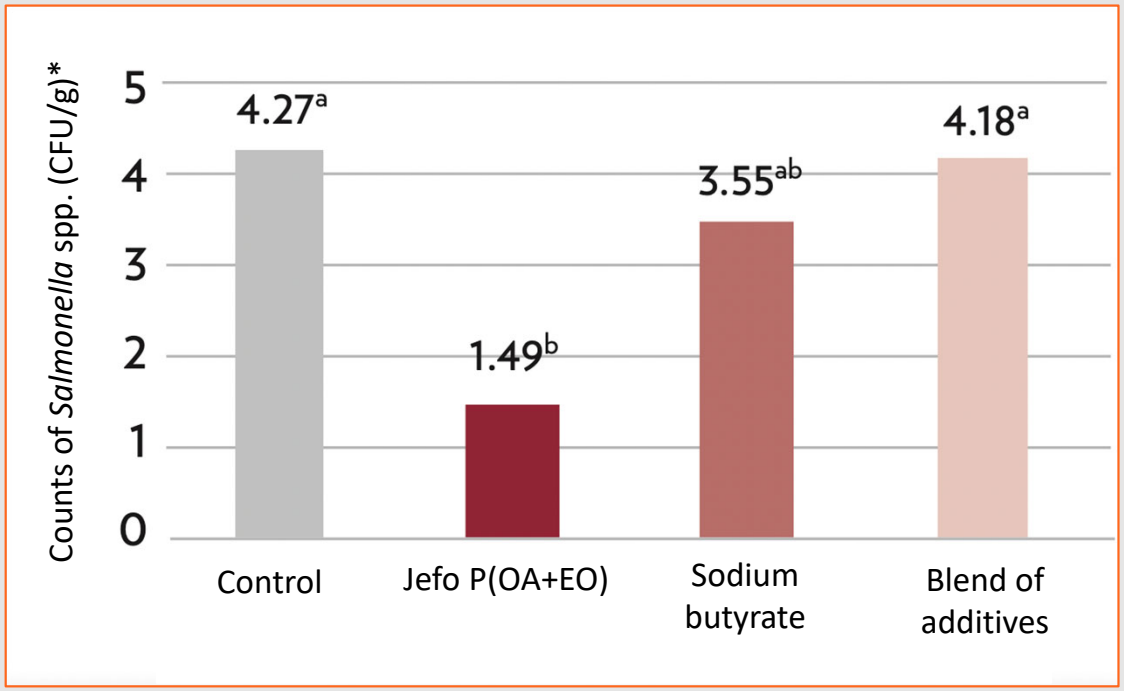
pH-sensitive bacteria exhausts itself and dies

Reduction of bacterial challenge

JEFO SOLUTION

Jefo P(OA+EO)* improves the intestinal barrier, reducing the chances of *Salmonella* reaching the bloodstream and other organs

The lowest *Salmonella* count in liver, spleen, and cecum of poultry is achieved with Jefo P(OA+EO)



Jefo P(OA+EO) = Jefo Protected Organic Acids + Essential Oils at 300 g/t in all phases.
Sodium Butyrate at 750, 500 and 250 g/t (starter, grower and finisher, respectively).
Blend of additives: Butyric acid + Medium Chain Fatty Acid + Essential Oil + Polyphenols at 1000, 750 and 500 g/t (starter, grower and finisher, respectively).
**Salmonella* quantified by MPN (Most Probable Number) method.

TRR: GL436

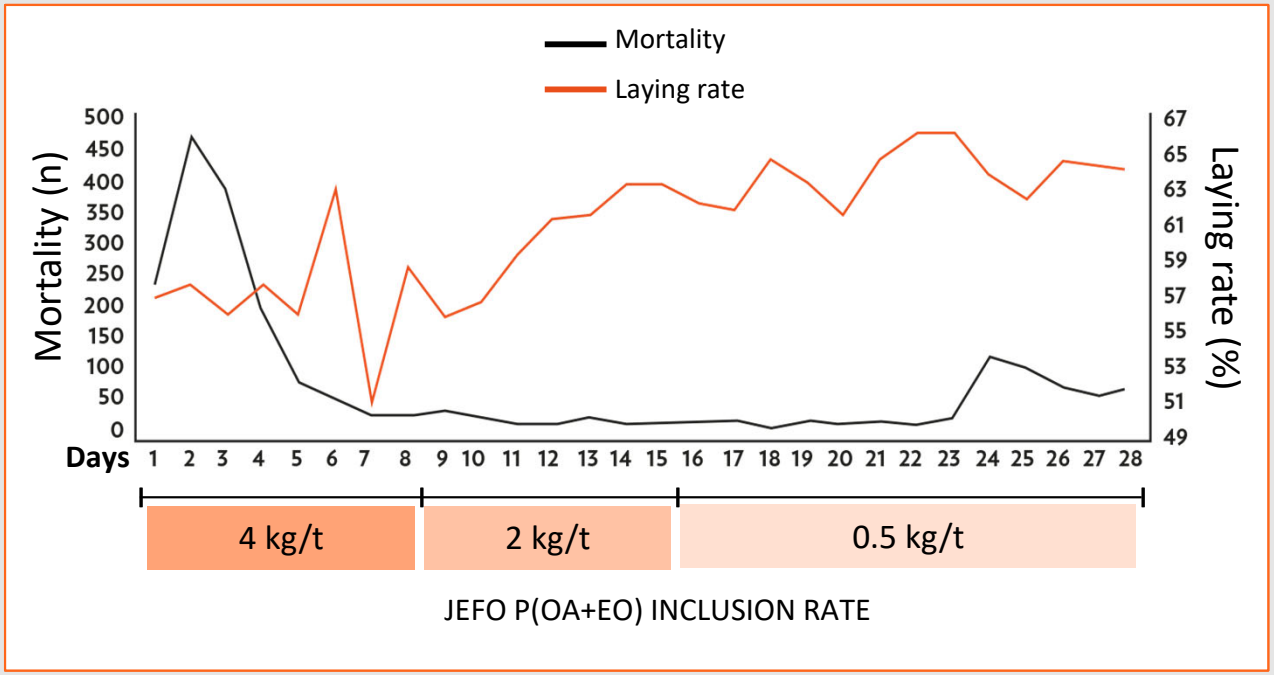
*Jefo P(OA+EO): Jefo Protected Organic Acids + Essential Oils.

JEFO SOLUTION

Jefo P(OA+EO)* mitigates the negative effects of *Salmonella gallinarum* on productive performance and mortality in commercial hens

TRR

Recovery in laying rate and reduction in mortality with Jefo P(OA+EO) in laying hens undergoing a *Salmonella gallinarum* field challenge



Jefo P(OA+EO) = Jefo Protected Organic Acids + Essential Oils.
Commercial laying hen farm.

GL142_TRR: 4

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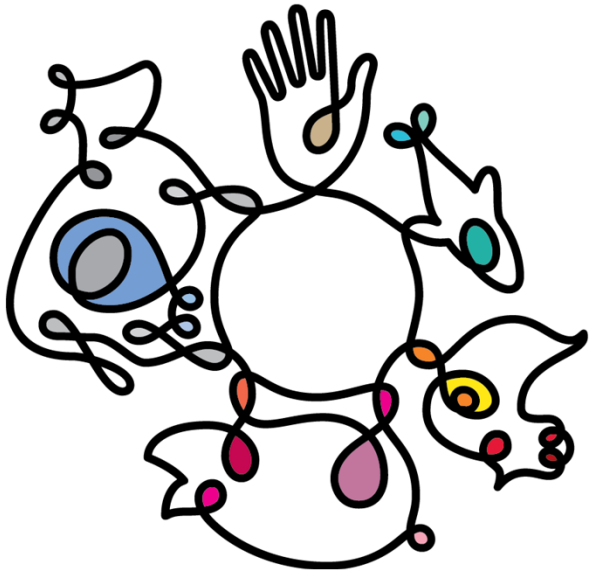
Jefo P(OA+EO): Jefo Protected Organic Acids + Essential Oils.

Feed Innovation to Lower *Salmonella* Risk in Poultry

FOR MORE INFORMATION ON LOWERING SALMONELLA RISK IN POULTRY CONTACT US AT JEFO.

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Jefo