# CRINA® Ruminant

## Essential oil compounds for ruminants

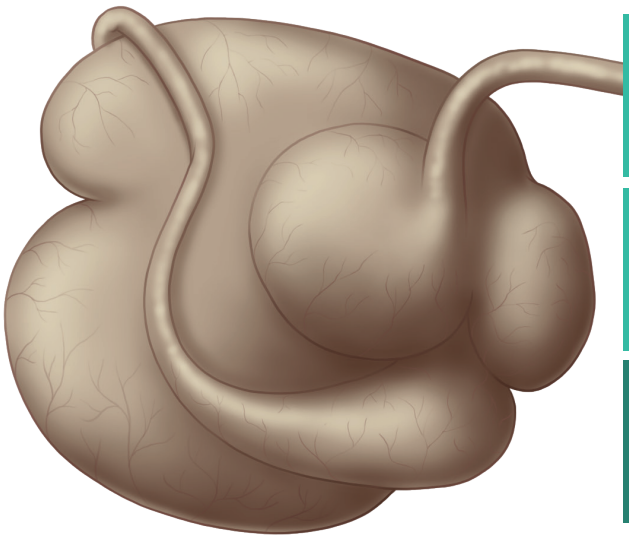


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# What is CRINA® Ruminants?

CRINA® Ruminants is a unique blend of natural and nature identical essential oil compounds. These are specially formulated into a dry powder which can be added to concentrates, mineral feeds or speciality products.
Essential oils have been used by man for centuries as fragrances, flavours and for their antimicrobial properties.
More recently, it has been discovered that specific compounds have a valuable role in supporting the health and performance of livestock species.
CRINA® Ruminants modulates rumen fermentation, and trials show that it can increase milk production in dairy cows and liveweight gain in beef cattle.



**Reduces rate of protein degradation**

**Reduces rate of starch degradation**

**Improved rumen stability and function**

# Rumen fine tuning for increased profitability

High yielding dairy cows and intensive beef cattle struggle to maintain an optimal rumen environment. Rumen acidosis is a frequent problem due to high starch diets. On pasture based systems, large intakes of soluble protein cause high rumen ammonia concentration. CRINA® Ruminants helps to fine tune rumen function by improving the efficiency of nitrogen and carbohydrate utilisation and feed conversion.

## Mode of action

- Selective effect on microbial attachment and colonisation of feed materials in the rumen
- Inhibition of Hyper Ammonia Producing (HAP) bacteria

## Rumen Fine Tuning

- Reduces the rate of protein and starch degradation
- Better synchrony between energy and protein degradation
- Modulates rumen environment:
  > stabilises rumen pH
  > reduces rumen ammonia concentration

## Increased profitability

- Increased milk production and milk protein yield
- Increased liveweight gain
- Improved feed conversion
- More stable rumen conditions help contribute to cow health and longevity

# Economics

## Dairy Cows

Results from a series of research and commercial studies in Europe and the US show that CRINA® Ruminants supplementation increases milk production by about 1.5 kg per cow per day. This gives a return on investment of 9:1.

## Beef cattle

Feedlot studies with CRINA® Ruminants show that liveweight gain increases by about 3% and feed conversion efficiency improves by 4%, giving a return on investment of 2:1.

## Supplementation guidelines for CRINA® Ruminants

| | g/head/day | | |
|---|---|---|---|
| Dairy Cow | 1.0 | | |
| | | | |
| | **mg/100kg liveweight/day** | **Liveweight kg** | **mg/head/day** |
| Beef Cattle | 150 – 200 | 200 | 300 – 400 |
| | | 400 | 600 – 800 |
| | | 600 | 900 – 1200 |
| | | | |
| | **g/head/day** | | |
| Sheep and Goats | 100 | | |

## Why CRINA®?

In 1980, CRINA®, then a private research centre for animal nutrition, recognised the significant role that essential oils could play as digestive stimulants in livestock production. Following extensive research, a range of precisely formulated and consistent blends of essential oil compounds, marketed under the CRINA® trademark, was developed. CRINA® Poultry, CRINA® Piglets, CRINA® Finishing Pigs and Sows stimulate superior feed digestibility and regulate gut microflora. CRINA® Ruminants reduces the rate of protein and starch breakdown in the rumen, as well as ruminal deamination and therefore increases rumen by-pass. All compounds used in CRINA® products are approved for feed and food and appear on the FEMA (Flavour and Extracts Manufacturers Association) and/or GRAS (Generally Recognised as Safe) listings.

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