

volac[®]

IMUNO  GARD[®]

A LIFEGUARD[®] MILK FORMULA

imunopro[®]
★★★★★

CELMANAX[™]



FEED FOR
GROWTH

IMUNOGUARD®

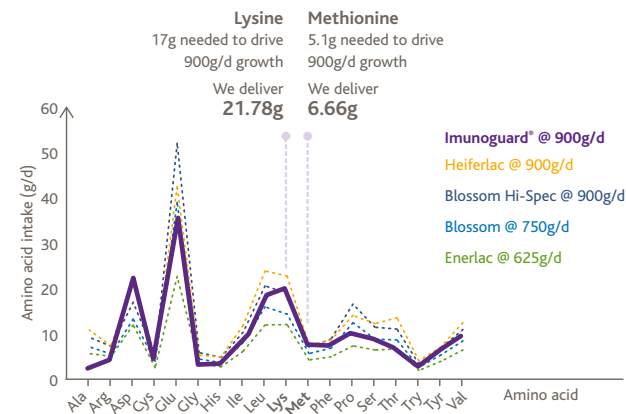
A LIFEGUARD® MILK FORMULA

A milk replacer specifically formulated for calves which face disease challenges on farm, and for those that need a helping hand. **IMUNOGUARD®** is specifically for those farms where calves are repeatedly suffering digestive disturbances and scours.

IMUNOGUARD®

- 100% Dairy Protein
- 23% Protein: 21% oil
- 23% Protein to lay down the building blocks for maximum growth and development
- 21% Fat to allow for more energy to be metabolised by the calf rather than using it to fight off disease pathogens.

Elevated levels of essential acids including Lysine and Methionine which are needed to ensure optimum calf growth and development.



Amino Acid	g per 900g/d
Lysine	21.78
Methionine	6.66
Cystine	4.68
Threonine	14.22
Histidine	3.78
Leucine	20.52
Isoleucine	12.42
Glutamic Acid	34.74
Arginine	4.95
Serine	10.35
Aspartic Acid	21.51
Glycine	3.69
Alanine	1.53
Tyrosine	6.03
Proline	12.42
Valine	11.52
Phenylalanine	6.3
Tryptophan	3.6

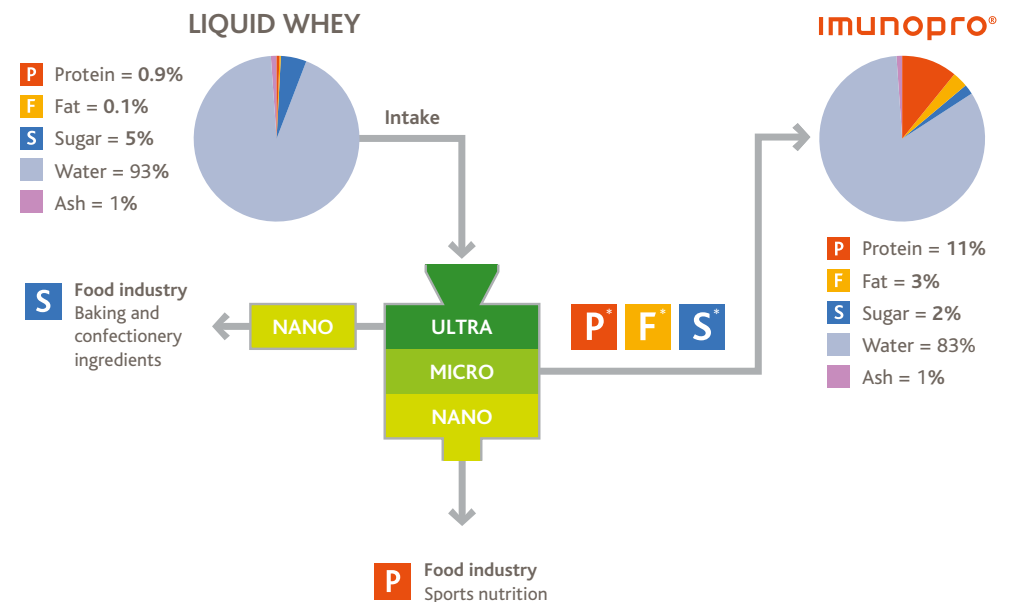
Our highest **imunopro®** content ever

imunopro® is our blend of super concentrated functional milk proteins these make up most of the protein content in colostrum and carry most of the biologically valuable ingredients to the calf including iGgs & amino acids.



- **imunopro®** contains high levels of the essential amino acids needed for calf growth and development, such as lysine and leucine (the same amino acids pro athletes need to build and repair muscle).
 - **imunopro®** also benefits from concentrated milk oils (fats) – at five times the level contained in standard whey or skim powders. Its sugars are concentrated to encourage the development of a healthy population of bacteria in the young calf's gut.
 - Lactoferrins – are present in **imunopro®** at elevated levels, and have been shown to decrease the instance of scours and reduce the severity in episodes.
 - Volac's **imunopro®** contains 35% concentrated milk protein. Liquid whey can be processed in a variety of ways, Whey powder only contains 12.5-13% protein, which is less than half of the 35% protein that is in **imunopro®**
- It is this concentrated milk protein that is so fundamental for young calf programming and healthy growth, which is why there is so much of it in colostrum.
 - Essentially, this concentrated milk protein provides the important nutrients calves need for growth, priming their immune system, assisting in pathogen control and shaping their development into productive adult cows.
 - **imunopro®** helps dairy farmers grow better cows more economically and sustainably. It sets calves up for a lifetime of productivity when they reach the adult milking herd.
- Check out our heifer road map (Page 8-9) for more information on the benefits of a younger age at first calving.**

The **imunopro®** process



100% Dairy Protein

IMUNOGUARD® is made with 100% dairy protein. By formulating to 100% dairy protein this means the level of Imunopro® in the product is maximised, this also increases the delivery of the functional whey proteins (contained within Imunopro®) to the calf giving it the best chance of fighting off a disease challenge.

The proteins which make up whole milk can be differentiated into casein and whey; Colostrum contains three times more whey protein (which makes up 65% of the protein content, with only 35% casein) than whole milk. The reason why there is so much more whey in colostrum than in whole milk is because the whey fraction contains the beneficial ingredients that are essential for calf health, growth and development.

Volac's heifer road map - the roadmap to success

Target 1: Weaning

- Highest feed efficiency during this period
- Increase pre-wean ADG proven to have positive impact on first lactation milk yield
- Mammary cell and gut development
- Immune status function development
- Underestimation of calf development during the pre-weaned period
- Are calves being fed accordingly to take full advantage?
- Only 42% of live born heifers reached 3rd lactation (RVC Study)
- Not included is the perinatal mortality (born dead or died within 24 hours of life) - that figure is 4-5%

Target 2: Breeding

- Heifers must be in calf by 15 months if they are to calve at 24 months
- Crucial time to monitor these heifers

Fit not fat

- Monitor on a regular basis – growth rate
- Heifers must be bred at 55%-60% of their mature bodyweight
- Irish data shows body weight cannot be accurately determined by eye
- Breed on weight to ensure heifers are at optimal size at calving ie. not too small and not too fat (fit not fat)

Target 3: Calving

- Age at first calving has a considerable impact on the number of replacements carried on a dairy farm.
- Less replacements means less feed, less time and less space
- 15% of potential dairy replacements born alive on UK farms and 20% in Ireland fail to even reach first calving due to calf mortality and conception failure as heifers.
- Calving weight should be 85-90% mature body weight

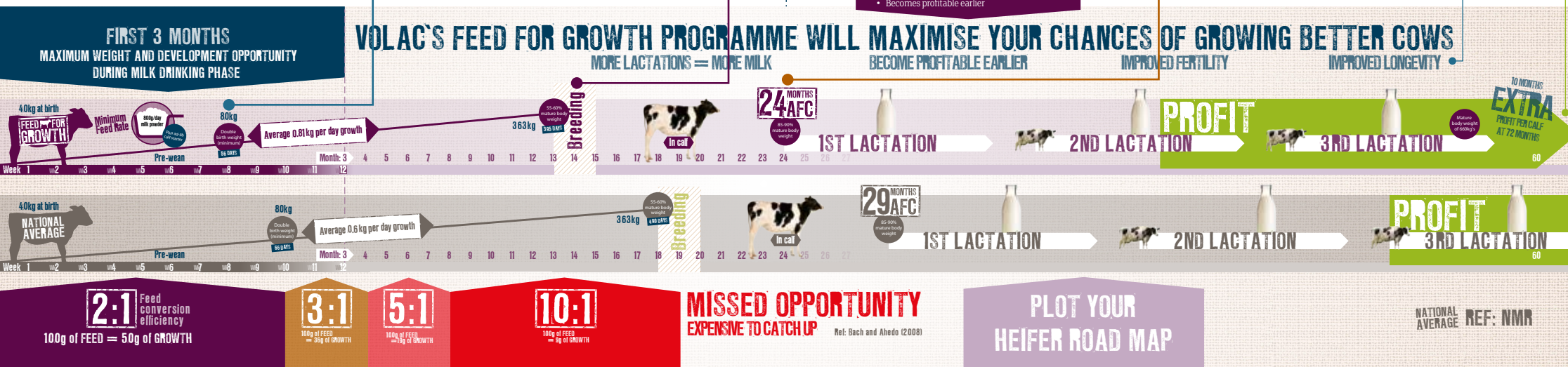


Remember, you won't know how your calves are growing without weighing them regularly, the most accurate way to do this is with a set of weigh cells, however a calf weigh tape will allow you to judge good growth.

Longevity:
70% reach 3rd lactation if AFC 24 months
59% reach 3rd lactation if AFC 26-30 months
50% reach 3rd lactation if AFC >30

Profit generation
• 10 months additional profit generation at 72 months
• Only 42% of live born heifers reached 3rd lactation (RVC Study)

AFC 24 v AFC 30 Months
• Increased fertility
• Increased milk yield
• Increased longevity
• Becomes profitable earlier



CELMANAX

CELMANAX™ is a hydrolysed yeast culture, including this within a complete diet for calves improves gut health by feeding the beneficial bacteria (prebiotic function).

CELMANAX™ could potentially contribute to decreasing medical costs by binding to the harmful pathogens (including *E.coli* & *Salmonella*) thus preventing them from attaching to the intestinal wall and taking hold.

Due to the enzymatic hydrolysis process that breaks down the yeast cell wall, it makes the **Refined Functional Carbohydrates** (such as mannose and beta-glucans) readily available for use by the calf.

Calves which are supplemented with CELMANAX™ shed three times less crypto oocysts than those which were not, thus helping to reduce the spread of disease they also had improved faecal and dehydration scores. (J Anim Sci 2009 Vol. 87, Church & Dwight).

Volac on farm trials with CELMANAX™ included in a Volac milk replacer

Trial 1: Feeding calves milk replacer (23% CP, 20% fat) plus CELMANAX™ resulted in mean growth rates of 0.8 kg/d up to 9 weeks of age.

Trial 2: Calves fed milk replacer (23% CP, 20% fat) plus CELMANAX™ gained more body weight compared to calves fed milk replacer not containing CELMANAX™ (26% CP, 16% fat) – calves had a 2kg BW advantage at 41 days of age.

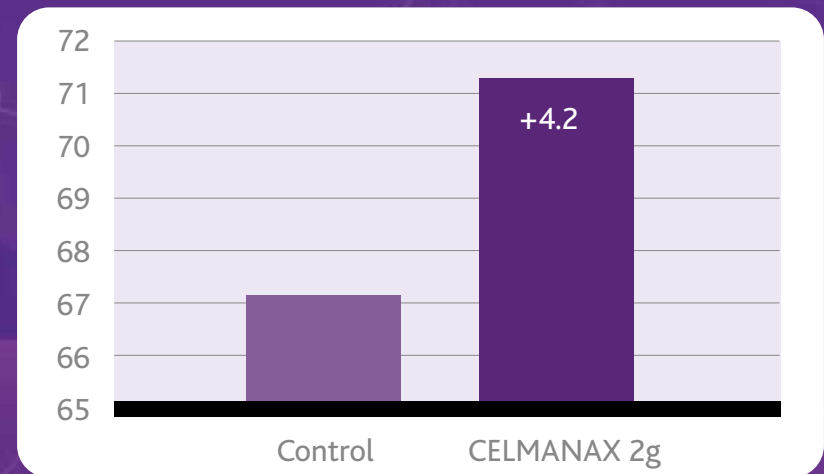
These results support the use of CELMANAX™ as an additive in milk replacer to improve calf growth & performance.

Get a fast, healthier start.

When milk replacers and starter feeds are powered by CELMANAX™, reduced incidence, severity and duration of cryptosporidiosis has been reported. Additionally, reduced incidence of BRD infections have also been seen. The healthy start leads to increased weight gain by up to 8 lbs. while improving feed efficiency.

Church & Dwight

Body weight gain at 48 days of age, lbs.



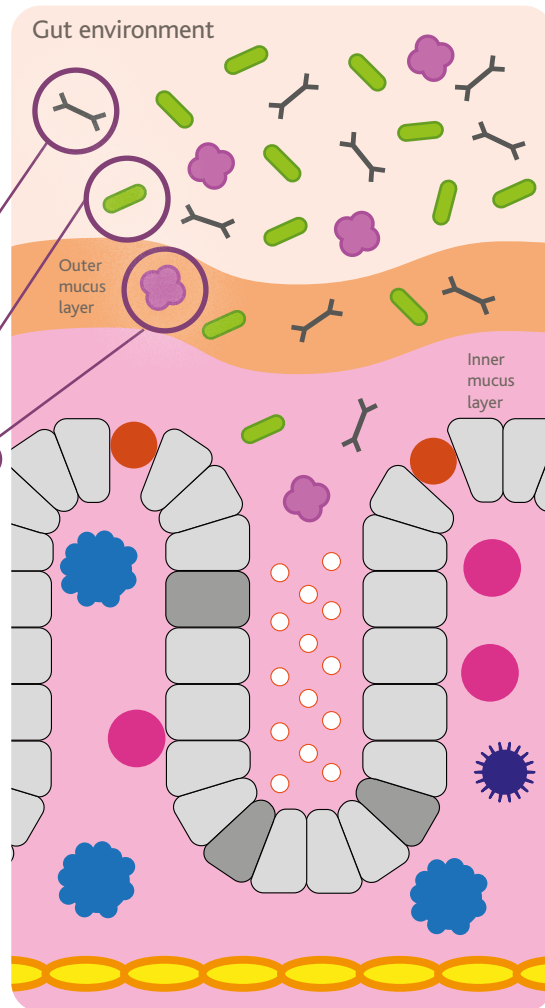
- CELMANAX™ helped improve some gut health parameters, which led to numerical improvement of growth and performance in preweaned dairy calves.

What is GARDION®?

- Enhances the function of the immune system
- Improves gut health



GARDION®



Derived from Garlic

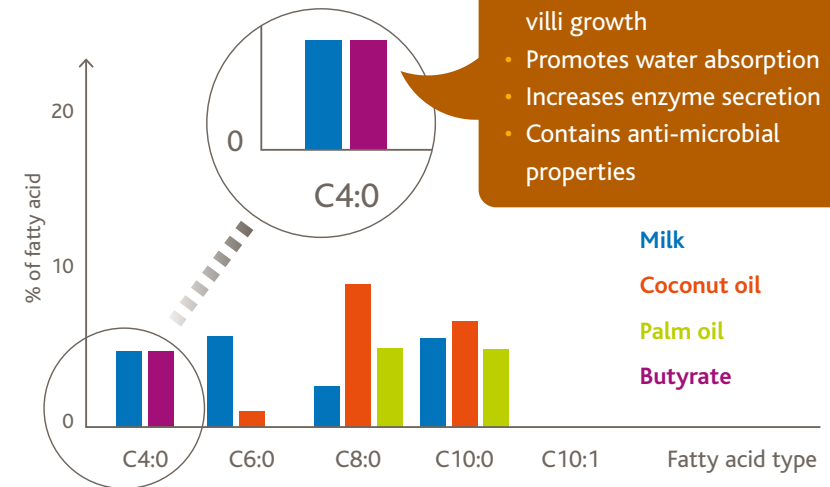
- Antiviral activity
- Antibacterial properties
- Antifungal response

What is BUTYRATE?

- Is an energy source for the gut
- Stimulates digestive enzyme production
- Stimulates intestinal blood flow and proliferation of intestinal cells
- Has anti-inflammatory effects and protects cells from oxidative damage
- Enhances glycogen synthesis and can therefore improve liver function



BUTYRATE



The addition of Gardion and Butyrate helps to improve gut health, aiding digestion and contributing to good calf growth.

IMUNO®GARD® is a creamy white powder which has visible specks of **CELMANAX™** in it.

The mixing rate for **IMUNO®GARD®** is 150g into a litre and we recommend feeding a minimum of six litres a day with a three week weaning period. **IMUNO®GARD®** is suitable for all of your calves and there is no need to switch milk replacers. It is perfectly suited to all types of feeding systems including computerised feeders.

TWICE DAILY FEEDING RATES (150g per litre of mixed milk)		
Age	am	pm
1 to 3 days	Colostrum: minimum 3 litres in first 6 hours, then give at least 2 litres/feed, twice a day	
4 to 7 days	2.5 litres	2.5 litres
8 to 35 days	3 litres	3 litres
36 to 49 days	2.5 litres	2.5 litres
50 to 56 days	2.5 litres	

BATCH MIXING PER FEED 1 x 20kg bag ImunoGard® + 113 litres water = 133 litres of milk			
No. Calves	IMUNO®GARD®	Water (ltrs) (approx)	Final mix (ltrs)
1	0.450	2.5	3
5	2.25	12.75	15
10	5.50	25.5	30
15	6.75	38	45



Provides the materials for growth, primes the immune system and supports in pathogen control while developing the future of your herd.

Palm Products Sustainability Policy

At Volac we are committed to helping dairy farmers improve productivity and the longterm health and welfare of their animals in a responsible and sustainable way. Volac aim to be the agents for change advocating responsibly sourced palm oil and palm oil derivatives. Volac's ambition is to lead the discussion on the importance of looking after the future dairy herd and the use of sustainable palm oil.

Benefits of palm products

Volac uses Palm olein (a derivative of palm oil) in its milk replacer formulations because its fatty acid profile is perfectly suited to youngstock nutrition as well as its efficiency and cost effectiveness as a crop. Palm is the most efficient oil-producing crop available today, producing more metric tons of oil per hectare than any other vegetable crop. This is important as the ever-growing global population strives to produce enough food. Palm is a particularly attractive commercial crop for smallholders, because they can grow it on a range of soils, requires relatively little fertilizers and pesticides, and bears fruit all year-round. Currently, oil palms are grown on approximately 7.4% of land devoted to vegetable oil crops, yet palm oil makes up 39.6% of all vegetable oil production. (EPOA)¹

Policy aims

Our sustainability policy for Milk Replacers guides us in our strategic and daily operations and also our future activities. It helps shape our broader sustainability agenda and serves as a promise to our customers, consumers and other stakeholders. It will educate and inform people about our use of palm-based materials and it is our vision and strategy to become a leader in sustainable dairy nutrition.

Global context

It is predicted that the global population will rise to more than nine billion by 2050, which in turn is expected to result in significant increase in the demand for palm oil and its derivatives. Volac recognises that whilst plantation development has contributed significantly to economic development in countries where palm oil is produced, and while a great deal of improvement has been achieved, in some cases the production of palm oil can still be linked to sustainability challenges like deforestation and exploitation of people and local communities. If palm oil and its derivatives are to play a leading role in the future of farming, then Volac is convinced that it must be produced in a sustainable and responsible way.

This policy applies to all Palm oil and its derivatives within our Volac Branded and Joint Branded Milk Replacers that we purchase as Palm olein or any other palm oil derivatives.

Our commitments

1. To only use palm oil derivatives in our milk replacer products from sources that fulfil NDPE sustainability criteria or RSPO Certified Sustainable Palm Oil.

Volac only sources palm oil and its derivatives for milk replacers from suppliers that share our commitment to the sustainability criteria of 'No Deforestation, No Peat and No Exploitation' (NDPE) with respect to plantation development and the palm oil supply chain.

The NDPE criteria are: -

- No Deforestation
- No Development on Peat
- No Exploitation of People and Local Communities

2. Transparency and traceability for all the palm oil derivatives and final products within our supply chain.

We define 'traceability' as the ability to trace palm oil throughout the supply chain back to mills. Our Palm Olein is > 99% and traceable back to mill.

3. To actively promote the benefits of sustainable palm oil within the animal feed industry

Volac only use products which have been supplier assured to align to NDPE criteria or that are RSPO Certified.

Volac has strong business and sustainability ambitions, however we acknowledge that in relation to the global palm oil production, the impact we can have as individual businesses is relatively modest. Therefore, we will do all we can to influence our industry and will collaborate with partners (customers, suppliers, processors, retailers, governments, NGOs and broader stakeholders) to further develop the sustainability, traceability and responsible sourcing of palm products, including those certified by the Roundtable on Sustainable Palm Oil (RSPO).

For our full Palm Oil Policy please see www.volac.com.

¹ <https://palmoilalliance.eu/wp-content/uploads/2019/10/Brochure-Palm-Oil-Story-2019-FINAL.pdf>



ImunoGard® is formulated to support challenged calves and is not replacement for good calf management.

  @feedforgrowth

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