volac Forage Products

Helping farmers to
preserve quality forage

Volac Interactive PDF

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What does the underlined text on some pages mean?

Throughout this document there are links to pages and other sections for additional information. You can quickly link from any piece of text that is underlined in black.

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The Volac range of silage additives

The Volac range of Ecosyl silage additives has been developed over a period of more than 30 years. Continuous research in fermentation, preservation and product formulation has resulted in significant product improvements over this period, particularly in three key areas: stability (shelf-life and tank-mix life), ease of use and proven efficacy.

The product range is based on the high performance *Lactobacillus plantarum* strain MTD/1, recognised by silage researchers worldwide as being backed by more independent trial evidence than any other silage inoculant.

Why use an additive?

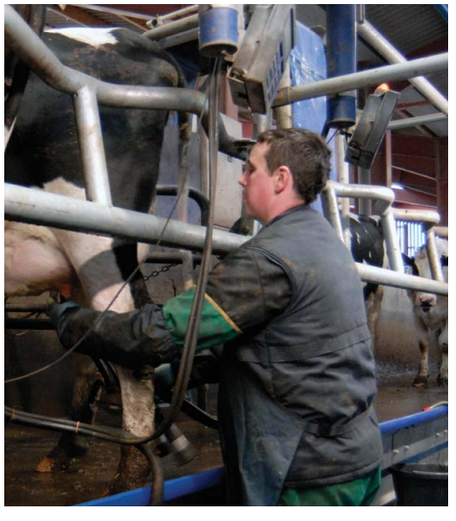
Silage fermentation is a complex process and is influenced by many factors, including those associated with the crop itself, the weather, ensiling and feedout techniques. Using additives removes some of the uncertainty from the process, although they should not be considered as a substitute for poor management.

It has also been recognised that some silage inoculants (e.g. MTD/1) can bring about cost effective animal performance benefits, even in situations where an untreated silage has fermented well.

Are additives cost effective?

That depends on the additive. The key elements are additive cost and its effect on animal performance and dry matter (DM) losses. You cannot determine the effect on animal performance from calculations based on the silage fermentation - you need independent full scale feeding trials.

On average, across 15 dairy trials, Ecosyl Products have been shown to give an extra 30 litres of milk per tonne of silage. Based on this alone it is highly cost effective. If the reduction in fermentation DM losses is included, it is even more so.



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MTD/1®

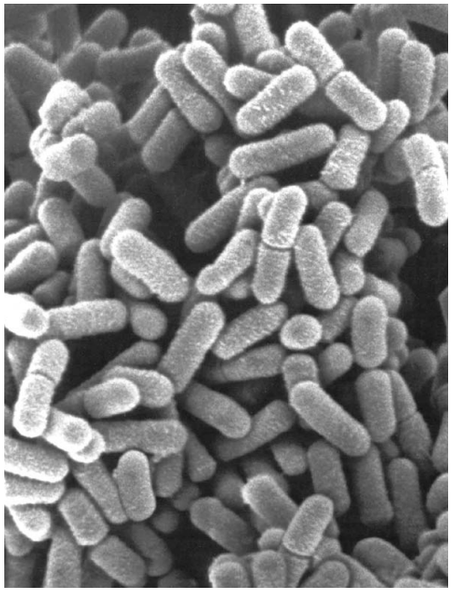
MTD/1 is the high performance strain of *Lactobacillus plantarum* found only in Volac's Ecosyl range of silage additives.

MTD/1 has a number of unusual characteristics that together make it a particularly effective silage inoculant.

Contains MTD/1

Features and benefits:

- Grows in the presence of air.
  No need to wait for conditions in the clamp to become anaerobic before it is active so fermentation starts immediately. This makes best use of available sugars, inhibits undesirable microorganisms sooner and achieves a faster, more efficient fermentation.
- Works across the whole silage pH range (7-4).
  No need for 'helper' bacteria to start the fermentation or finish it.
- Highly competitive.
  Out competes undesirable microorganisms fast, making best use of the available sugars.
- Rapidly produces large amounts of lactic acid.
  Results in a rapid pH fall to inhibit undesirable microorganisms faster and results in the retention of more true protein.
- Osmotolerant.
  Works with high DM forages as well as low.
- Works over a wider temperature range than many other strains.
  Suitable for hot summers as well as cool.



MTD/1 is recognised by silage experts worldwide to have more supporting trial data behind it than any other inoculant.

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ECOSYL® 100

Silage additive for clamped grass and legumes

Contains **MTD/1**

Features and benefits:

- Contains *Lactobacillus plantarum* strain MTD/1.
  This strain has more independent proof behind it than any other.
- Guaranteed to apply 1 million MTD/1 bacteria per gram forage.
  For faster domination of the fermentation, especially in difficult situations.
- All of the bacteria are active immediately.
  No delay in starting fermentation – no need for 'helper' strains.
- Faster fermentation.
  Inhibits undesirable microorganisms faster and retains more true protein.
- More efficient fermentation.
  Faster pH fall and reduced DM losses.
  Needs less sugar to achieve a stable pH.
- A consistent performer.
  Gives confidence it will work for you too.
- Mixes in the bottle – ready immediately.
  Easy to use.
- Can be applied at an Ultra Low Volume (ULV) rate of just 20 ml/t.
  Minimises downtime.
- The same bottle can be used to apply at anything from 20 ml/t (ULV) to 2 litre/t.
  Maximum flexibility. Can be applied with any applicator.
- Ecosyl 100 bags offer a bigger pack size with a lower application rate.
  Minimises downtime.

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ECOSYL® 100

The world's most proven inoculant

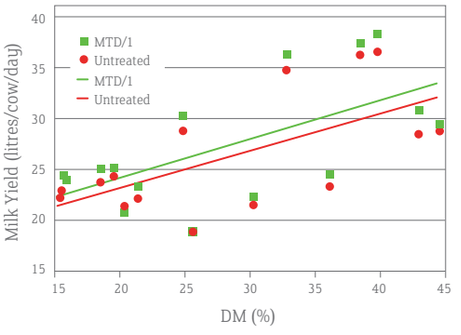
Proven beyond doubt

- 200+ fermentation trials
- 40 intake/digestibility/ME trials
- 33 animal performance trials
- Tested over a wide range of crops and ensiling conditions

High performance

- 200+ fermentation trials
- 40 intake/digestibility/ME trials
- 33 animal performance trials
- Tested over a wide range of crops and ensiling conditions

MTD/1 is a consistent performer as shown by the regression analysis of 15 dairy trials, carried out over a wide range of crops and conditions.



- Available for liquid or dry application
- One bottle/bag treats 100t
- Variable liquid application – from 20 ml (ULV) to 2 l/t
- 48 hour tank mix life
- Dry application 200g/t
- 24 month shelf life in a cool, dry place
- GMO free, suitable for organic use

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Double Action

Double Action combines an inoculant and an acid salt preservative in a single easy-use pack.

Biological action

From *Lactobacillus plantarum* strain MTD/1 inoculant which has more proof behind it than any other silage inoculant.

- High performance (see Ecosyl 100)
- Faster, more efficient fermentation
- Less protein breakdown
- Reduced DM losses

Potassium sorbate is a very effective inhibitor of the yeasts and moulds that cause aerobic spoilage but is also inhibitory to the lactic acid bacteria required for fermentation so it would not normally be possible to combine the two, especially when being applied as liquid. Double Action technology has enabled true hybrid products to be produced.

Chemical action

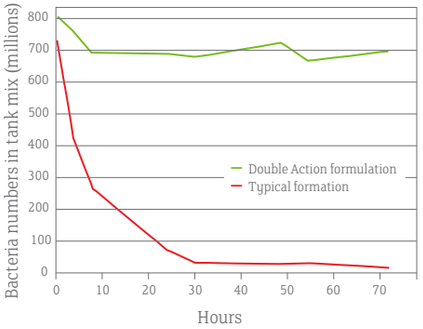
From a special formulation of potassium sorbate, a safe, non-corrosive, food and feed-approved chemical preservative.

- Direct inhibition of yeasts and moulds
- Activity increased by the reduction in pH during silage fermentation
- Delayed heating
- Less extensive heating
- Reduced DM losses
- Less risk of mycotoxins
- Increased palatability
- More nutritious silage

Silage trials confirm Double Action formulation does not compromise the performance of the MTD/1 inoculant.

	Control	MTD/1	DA
pH	4.5	4.0	3.9
Lactic Acid (%DM)	7.6	16.5	16.3

Without DA technology the inoculant bacteria would begin to be killed by the sorbate within a few hours of mixing the product.



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DA Ecostable

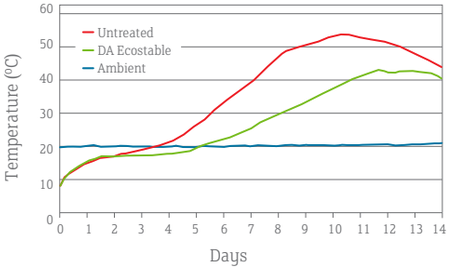
Silage additive for clamped grass and legumes at risk of aerobic spoilage

Double Action

Features and benefits:

- Applies 1 million MTD/1 bacteria per gram forage.
  Dominates the fermentation quickly.
- Faster, more efficient fermentation.
  Inhibits undesirable microorganisms faster and reduces protein breakdown. More palatable and nutritious and lower DM losses.
- Reduced aerobic spoilage – delayed and less extensive heating.
  Reduced DM losses, less waste, more palatable, higher feed value and less risk of mycotoxins.

A trial on 38% DM grass at AFBI in Northern Ireland showed how DA Ecostable can reduce both the rate and extent of aerobic spoilage.



	Control	Treated
Days to start heating	4.0	5.8
Max temp. (°C)	57.3	46.8
Accumulated °C over 8 days	86.6	26.9

- 1 pack treats 50t
- Liquid application – 2 l/t
- 48 hour tank mix life
- Dry application – 500 g/t
- 30 month shelf life in a cool, dry place
- GMO free and suitable for organic use (restricted – contact certification body before using)

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DA Ecobale®

Silage additive for bales

Double Action

Features and benefits:

- Applies 1 million bacteria per gram forage of a 1:1 mixture of *Lactobacillus plantarum* strain MTD/1 and a specially selected strain of *Pediococcus pentosaceus*.
  Dominates the fermentation quickly.
- Faster, more efficient fermentation.
  More palatable and nutritious bales and lower DM losses.
- More consistent fermentation.
  Less bale variability. More consistent rations.
  Ideal for fussy feeders such as horses.
- Less waste from damaged bales.
  More to feed.
- Opened bales stay fresh for longer.
  Less waste and health risks.
- Less risk of mycotoxins & listeria.
  Healthier cattle & sheep.
- Fewer mould spores.
  Healthier horses.
- Improved palatability.
  Higher intakes.

- 1 can treats 16t
- Liquid application – 3 l/t
- 48 hour tank mix life
- 24 months shelf life in a cool, dry place
- GMO free, suitable for organic use (restricted)

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DA Ecocorn®

Silage additive for maize and wholecrop

Double Action

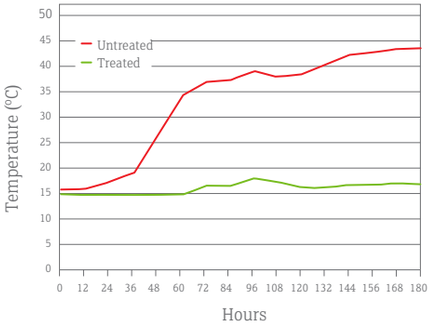
Features and benefits:

- Applies 100,000 MTD/1 bacteria per gram forage.
  Dominates the fermentation quickly.
- Faster, more efficient fermentation.
  Inhibits undesirable microorganisms faster and reduces protein breakdown.
  More palatable and nutritious and lower DM losses.
- Reduced aerobic spoilage – delayed and less extensive heating.
  Reduced DM losses, less waste, more palatable, higher feed value and less risk of mycotoxins.

	Days Stable	
	Control	Treated
Wheat	2.4	8.0
Barley	2.1	5.3
Maize	1.3	8.4

Independent maize trial at INRA in France

This INRA trial shows how effective chemical preservatives can be at preventing heating in maize silage.



- 1 pack treats 50t
- Liquid application – 2 l/t
- 48 hour tank mix life
- Dry application – 400 g/t
- 30 month shelf life in a cool, dry place
- GMO free and suitable for organic use (restricted – contact certification body before using)

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The *Varicool*® concept

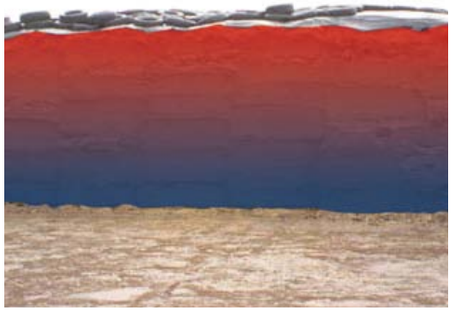
MTD/1 fermentation and animal performance benefits + reduced aerobic spoilage

Some facts about clamps and aerobic spoilage (or heating and moulding):

- Clamps are not uniform so the risk of spoilage varies.
- It is the top, shoulders and face of the clamp that are most at risk because air must be present.
- At feedout, although the whole face is exposed to air, the risk is much higher at the top where the silage density is lower because the air can penetrate further into the clamp.

This suggests that the most efficient way to use an anti-spoilage additive would be to vary the application rate according to the risk of aerobic spoilage in different areas of the clamp. Yet it is important to treat all of the clamp with the inoculant at a single rate. DA Varicool allows you to do this.

Rate	Preservative rate (l/t)	% Clamp treated
Single	0.33	100
Double	0.66	66
Triple	1.00	33



Features and benefits:

- You can apply the MTD/1 inoculant at a fixed rate to the whole clamp.
  All of the silage will benefit from it.
- Potassium sorbate preservative can be applied at a variable rate depending on the risk of aerobic spoilage (See table).
  Using a low rate on less vulnerable areas allows you to use a higher rate where it is most needed.
- Low volume rates can be used for the inoculant and chemical preservative.
  Reduces downtime.

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DA Varicool

Silage additive for flexible application to maize and wholecrop

Double Action

A UK trial with maize (30% DM) clearly showed that while single rate preservative improved aerobic stability, using it at a higher rate would be even more beneficial, giving over ten days stability.

	Control	Single	Triple
Stability (days)	5.4	8.6	10+

Maize trials by Pries & Hunting at Landswirtschaftskammer Nordrhein-Westfalen in Germany have shown that application of potassium sorbate at triple rate can give over 10 days stability.

	Days Stable	
	Untreated	Varicool
Trial 1	6.3	14.4
Trial 2	6.2	17.5

- For liquid application only
- 100t pack contains: 1 bottle of MTD/1 inoculant and 2 cans of potassium sorbate
- 48 hour inoculant tank mix life
- 18 month shelf life in a cool, dry place
- GMO free and suitable for organic use (restricted – contact certification body before using)

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Eco applicators

Ecosyler

Ultra low volume applicator for liquid application

This Ultra Low Volume (ULV) system has been developed especially for application of Ecosyl 100 at 20 ml/t of forage with self-propelled harvesters. It comes complete with a 22 litre tank, pump in a weatherproof box and low level indicator, all mounted on a stainless steel frame, as well as a digital in-cab control box. The Ecosyler can be fitted to any self-propelled forage harvester and it can be used to apply a range of ULV products at 10-50 ml/t of forage.

Ecoflow

For liquid application

A high output stem pump for use with 200 litre drums . Ideal for self-propelled or trailed harvesters and forage wagons. The Ecoflow S and Ecoflow FW both have a maximum output of 10 l/min (open flow*). They come complete with fully variable in-cab controls, flow meter, single brass nozzle body and a set of jets. The Ecoflow FW also has a solenoid valve available as an optional extra to prevent siphoning when mounted high on a forage wagon. The Ecoflow H has a higher range pump (8 – 15 l/min) with a flowmeter, nozzle body and jet pack available as optional extras. Ecoflow applicators can be used with organic acid additives.

Ecobaler

For liquid application

Ideal for balers but can also be used with forage harvesters or forage wagons. Maximum output 8 l/min (open flow*). Supplied with a 250 litre tank, fully variable in-cab controls, pressure gauge, two nozzles, wiring, tubing and a set of jets. NB. This applicator is not suitable for use with acid-based additives.

*open flow – no tubing or nozzles

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Eco applicators

Magnum

For liquid application

As for the Ecobaler applicator but with a larger 400 litre capacity tank and higher output pump (maximum 19 l/min open flow*). Ideal for use with high-throughput self-propelled harvesters, big square balers and forage wagons.

Miniflow

For liquid application

A reliable, low output submersible pump suitable for use with 200 litre drums or 25 litre cans. Maximum output 3 l/min (open flow*). Supplied with fully variable in-cab controls, wiring,tuding, two nozzles and a set of jets. The Miniflow S is for standard round balers or trailed harvesters and comes with two nozzles. The Miniflow MB is for haylage mini balers and comes with one nozzle.

Powder

For dry application

An 80 kg capacity applicator with rotor delivery system and fully variable in-cab controls. The applicator can be adjusted to give a wide output range (e.g. 200 to 3100 g/min for Ecosyl 100). A number of different delivery options are available.

*open flow – no tubing or nozzles

RL80TA

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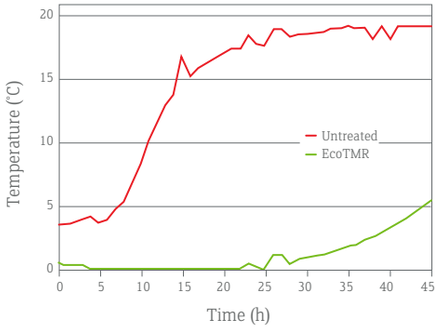
EcoTMR

TMR stabiliser

Features and benefits:

- Contains a mixture of two food and feed-approved preservatives, sodium propionate and potassium sorbate.
  To deal with the higher risk of aerobic spoilage due to physical aeration of the ration during mixing.
- Inhibits the yeasts and moulds that cause heating in the feed trough.
  Keeps feed fresh for longer so more palatable and nutritious with lower DM losses.
- More stable feed.
  Allows rations to be mixed less often.

Delays heating by up to 48 hours



Reduces nutrient losses by up to 50%

	Decline over 2 days	
	Untreated	EcoTMR
ME (MJ/ kg DM)	0.81	0.34
'D' value (%)	5.1	2.1

- One bag treats 50t TMR
- Liquid application at 4 l/t into the mixer wagon
- 24 month shelf life in a dry place

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Topwrap® high quality film

Topwrap is manufactured by Trioplast, one of the world's largest and most progressive film manufacturers, using modern, dedicated production lines

It's tough - has a unique tack - seals in the nutrients

Perfection in only 4 layers

Topwrap's superior quality means that 4 layers are sufficient, except for high dry matter (>40%) round bales, all square bales, heavy chopped bales and those for livestock sensitive to mould, i.e. horses, sheep and pregnant livestock - when it is recommended that six layers of wrap are used.

Features of Volac Topwrap

- Unique formulation utilising high carbon resins
- Modern manufacturing techniques
- Available in Eco-Green, Black and White and in a full range of sizes
- Superior impermeability to air and water
- Strong and durable with ideal tack levels
- UV protection for all climates
- Side opening boxes and plastic cores
- Supported by Volac technical back-up and advice

Cool bales

Use Volac Topwrap Eco-green or White film to keep your bales cool and reduce spoilage.

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Topwrap® 2000 wraps more bales

Longer film for bale wrapping

If you wrap bales with Topwrap 2000, using the same number of layers as standard film, you will use fewer rolls, save time and money and still produce top quality silage.

Topwrap 2000 is made using a revolutionary process in which the film is stretched under controlled conditions before it goes on to the roll. Apply exactly as you would standard Topwrap film, using the same gears and settings and the same number of layers. With 24% less plastic applied per bale, not only will you wrap more bales per roll of film, but you will have less plastic per bale to dispose of, thus helping both the environment and your pocket.

The benefits of using Topwrap 2000

- Save time and money: one roll wraps more bales so you can wrap more bales/day
- 10% cost saving per bale
- 33% extra film per roll (500m)
- Up to 30% extra output - up to 10 more bales per roll
- Fewer roll changes, roll handling, and waste handling
- 24% less plastic per bale so less waste
- Reduced logistic costs (transport, storage, handling etc)
- No need to change gears (stretch at 70%)
- As good as standard film, proven in independent trials

Product Code	Name	Width (mm)	Length (m)	Colour	Rolls per Pallet
17510	Topwrap	750	1500	Black	40
17511	Topwrap	750	1500	Green	40
17515	Topwrap	500	1800	Black	24
19802	X-treme*	340	2400	Green	30
19900	T2000	730	2000	Black	15
19922	T2000	730	2000	Green	15

*X-treme is a strong film designed to wrap small haylage bales at 32-38% stretch.

Topnet® quality net wrap for bales

The benefits of Topnet

- Suitable for all crops, under all conditions
- Guaranteed length of 3000 and 3600m
- Packed in plastic cover
- Proven on all makes of round baler
- Made from premium grade raw materials
- Reel end warning on the last 30 metres
- Every roll is UV stabilised
- 2-3 turns are required to make a perfect bale
- Directional roll side marking
- Edge to edge performance

ECOSYL®	Ecosyl 100	DA Ecostable	DA Ecobale	DA Ecocorn	DA Varicool	EcoTMR
Crops	Clamped low DM grass & legumes at low risk of aerobic spoilage	Clamped high DM grass and fermented wholecrop cereal /legume bi-crops	All silage and haylage bales	Maize and fermented wholecrop cereals	Maize and fermented wholecrop cereals	Total Mixed Rations
Ingredients applied to forage: *Lactobacillus plantarum* (NCIMB 40027)	$1x10^6$ /g	$1x10^6$ /g	$5x10^5$ /g	$1x10^5$ /g	$1x10^5$ /g	
Pediococcus pentosaceus (NCIMB 30168)			$5x10^5$ /g			
Potassium sorbate			91 g/t	91 g/t	91-283 g/t	91 g/t
Sodium propionate						233 g/t
Application (per tonne treated)	Liquid 20ml - 2 litres Granular - 200g	Liquid - 2 litres Granular - 500g	Liquid only - 3 litres	Liquid - 2 litres Granular - 500g	Liquid only Inoc. 20ml - 2 litres Sorbate: variable	Liquid only - 4 litres
Main benefits	Improved fermentation & animal performance	Improved fermentation, animal performance & aerobic stability	Improved fermentation, animal performance & aerobic stability	Improved fermentation, animal performance & aerobic stability	Improved fermentation, animal performance & aerobic stability	Keeps TMR fresh for longer
Shelf life (Unopened)	24 months in a cool dry place	30 months in a cool dry place	24 months in a cool dry place	30 months in a cool dry place	18 months in a cool dry place	24 months in a cool dry place
Tank-mix life	48 hours (ULV: 10d in fridge)	48 hours	48 hours	48 hours	Inoc - 48 hours Sorbate - 7 days	7 days
Organic use	Yes	Yes (Restricted)*	Yes (Restricted)*	Yes (Restricted)*	Yes (Restricted)*	–
Tonnes treated/pack	100	50	16	50	100	50
Packaging	2 litre bottle / 20kg bag	12.5 litre can / 25kg bag	5 litre can	12.5 litre can / 20kg bag	2 litre bottle / 2 x 12.5 litre cans	17.15kg bag

*see certification body before using

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The information provided in this booklet is accurate at the date of publication so far as Volac is aware. Any changes to a farm animal ration should be approved by your nutritional advisor. Volac cannot take responsibility for problems, damages or losses caused either directly or indirectly by the use of information provided herein.

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