

## The one-product solution for high quality silage



**Dr. PIEPER**  
Technology and Product Development GmbH

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**BIO-SIL®**  
Lactic acid bacteria for high quality silages  
SUITABLE FOR ALL TYPES OF LIQUID DOSERS

**Quality mark of the German Agricultural Society**  
Group 1b, 1c, 4b, 4c:

1 b: Improvement of fermentation in moderate ensilable forages in DM range ≤ 35 %, forages with sufficient fermentation substrate (grasses, legumes, maize silages, whole crop silages)  
1 c: Improvement of fermentation in easy ensilable forages in DM range 35-50%, forages with sufficient fermentation substrate (grasses, legumes, maize silages, whole crop silages)  
4 b: Improvement of digestibility  
4 c: **new** Improvement of milk yield

**APPLICATION INSTRUCTIONS**  
Dosage of grass, maize, legume and whole crop silages:  
Dissolve 1 bag (100g) for 100 t ensiled material in 50 - 200 l of unchlorinated water. Finely spray 0.5 to 2 l BIO-SIL® solution on 1 t ensiled material (1 gram t ensiled material). BIO-SIL® solution is immediately ready for use. Whenever water is chlorinated we recommend our product **Chlor-ox**.

Inoculation density: 300,000 cfu/gram of ensilage material  
Storage: Cool and dry, ≤ +8°C

Net weight: 100 g.  
Batch: \_\_\_\_\_

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## GERMAN PERFORMANCE AND QUALITY AT REASONABLE PRICES!

**BIO-SIL®** is THE inoculant that produces the fastest pH drop, over the widest range of crops and conditions whilst still achieving high levels of aerobic stability. The specially selected strains of high vigour bacteria (*Lactobacillus plantarum* DSM 8862(1) and *Lactobacillus plantarum* DSM 8866) are highly effective at low application rates offering unrivalled economic performance.

**Quality control checks confirm the number and activity of the bacteria prior to dispatch and all products are tested twice as an assurance of BIO-SIL® quality.**

**BIO-SIL® has been DLG\*-approved in the categories 1 b, 1 c, 4b and 4c.**

**1 b:** Improvement of fermentation in moderately difficult to ensile forages in DM range <35%, forages with sufficient fermentation substrate (grasses, legumes, maize silages, whole crop silage [WCS])

**1 c:** Improvement of fermentation in easy ensiled forages in DM range 35-50%, forages with-sufficient fermentation substrate (grasses, legumes, maize silages, whole crop silage [WCS])

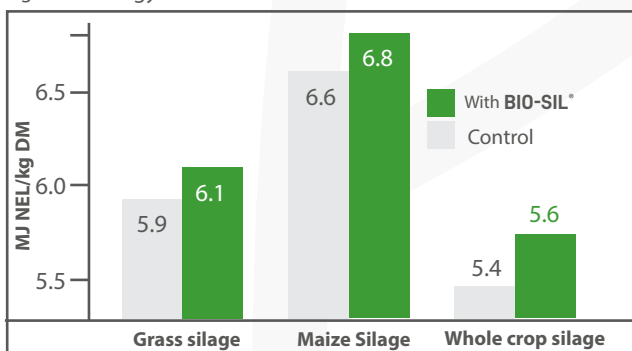
**4 b:** Improved digestibility

**4 c:** Improved milk yield

\* DLG (Deutsche Landwirtschafts-Gesellschaft)- is an international non-profit organization for agricultural industry in Germany

### Results from DLG tests

Figure 1: Energy concentration



## BENEFITS OF USING BIO-SIL®

**BIO-SIL®** promotes rapid production of lactic acid in fresh silage to quickly achieve a low pH and stable silage in a wide range of crops and conditions. Specific advantages include:

- ✔ Rapid pH drop (a stable pH value is achieved after 1 to 2 days, where yeasts and moulds are rapidly eliminated)
- ✔ Reduced dry matter losses
- ✔ Reduced protein degradation
- ✔ Increased energy concentration
- ✔ Increase of forage intake (0.5 to 1.5 kg per cow per day)
- ✔ Increased digestibility by 2 to 3 %
- ✔ Increased milk production (up to 2 litres per cow per day)
- ✔ Reduction of heating during the ensiling process by about 5°C, thus lower nutrient losses and increased storage stability.
- ✔ Increase of lactic acid content and strong reduction of acetic fermentation, particularly in wet silages (hence, a higher forage intake)
- ✔ Early feed out possible **BIO-SIL®** treated forage may be available to be fed after around seven days of fermentation.

Table 1: Fermentation parameter and dry matter losses

Parameter	moderate ensilable forages (test 1b)		easy ensilable forages (test 1c)	
	Control	With BIO-SIL®	Control	With BIO-SIL®
Dry matter %	27	29	33	33
pH	5.2	4.4	4.3	4.0
Lactic acid % in FM	0.88	1.58	2.21	2.73
Acetic acid % in FM	0.30	0.26	0.52	0.40
Butyric acid % in FM	0.66	0.19	0.09	0.01
Propionic acid % in FM	0.10	0.02	-	-
Alcohol % in FM	0.27	0.15	-	-
NH <sub>3</sub> -N in % of total-N	19	7	6	3
Dry matter losses	5.7	3.8	4.8	3.7

## GERMAN PERFORMANCE AND QUALITY AT REASONABLE PRICES!



### ADVANTAGES OF USING **BIO-SIL**<sup>®</sup>

**BIO-SIL**<sup>®</sup> is an extremely flexible silage inoculant that's advantages include:

- ✔ Extremely wide operational window
- ✔ Easy to store, use and apply
- ✔ Outstanding performance and value
- ✔ The bacteria are NOT genetically modified and thus can be recommended for all silages including use on organic farms (controlled and certificated by Alicon GmbH, D-73728 Esslingen).

### APPLICATION AND USE

**BIO-SIL**<sup>®</sup> is readily dissolved in water immediately before being applied to the fresh silage. **BIO-SIL**<sup>®</sup> is supplied in 100g packs just 14.2cm x 15.8cm, sealed in airtight aluminium bags. The contents of each pack should be dissolved in 100 litres of non-chlorinated water and is sufficient to treat 100 tonnes of fresh silage material.

**\*For more information see FAQ section.**

### ECONOMIC CONSIDERATIONS ON THE USE OF **BIO-SIL**<sup>®</sup>

The following calculation is based on an increase of energy content (+0.2 MJ NEL/kg/DM), an increase of dry matter intake (+0.5 to 1.0 kg dry matter per day) and an increase of milk yield (1.2 to 2.7 litres/cow/day), which has been shown in different trials as well as at farm level.

Table 2: Benefits achieved by the use of **BIO-SIL**<sup>®</sup>

Example		Control	1	2
Ease of ensiling with natural bacteria		high	high	low
Treatment		control	with <b>BIO-SIL</b> <sup>®</sup>	with <b>BIO-SIL</b> <sup>®</sup>
Silage intake	kg fresh matter/day	34.3	35.7	37.1
	kg DM/day	12.0	12.5	13.0
NEL	MJ/kg DM	6.3	6.5	6.5
	MJ/day	75.6	81.3	84.5
Milk yield from silage (3.3 MJ NEL/litres milk)	litres/cow and day	22.9	24.6	25.6
Difference in milk yield	litres/cow and day		+1.7	+2.7
Additional output (litres milk x £0.30)	£/cow and day		0.51	0.81
	£/cow and 305 days		156.70	246.80
Input for <b>BIO-SIL</b> <sup>®</sup> (0.7 £/t and approx. 35 kg silage/cow and day)	£/cow and day		0.025	0.026
	£/cow and 305 days		9.13	9.49
<b>Benefit (Additional output - input)</b>	<b>£/cow and 305 days</b>		<b>147.57</b>	<b>237.13</b>



## CONTACT US

### Official Distributor

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#### **KPM Partners**

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Mob.: +44 7515 946086

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### Manufacturer

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