BIO-SIL® + Amasil® NA

1a for difficult to ensile forages

The new concept of combining highly effective, natural lactic acid bacteria (**BIO-SIL®**) and buffered formic acid (**Amasil® NA**) ensures a successful preservation of moderately difficult, difficult, and very difficult to ensile forages. The effectiveness of this reliable method has been proven by the DLG-test service for ensiling agents, various research studies and numerous practice farms.

Active Agents

BIO-SIL®

Composition	High effective, homofermentative lactic acid bacteria strains *Lactiplantibacillus plantarum* DSM 8862 and DSM 8866 • isolated from nature • **not** genetically modified • carrier lactose
Cell number	3 x 10^{11} CFU / g
Shelf life	≤ 8 °C: 2 years ≤ -18 °C: 4 years application suspension: up to 2 days (≤ 24 °C)

Amasil® NA

Amasil® NA is a partially buffered formic acid. The buffering causes the product to be approx. 90 % less corrosive than formic acid. It is easier to handle and has a reduced odour in comparison to pure formic acid.

Composition	75 ± 2 % formic acid, 7 ± 2 % sodium, 18 ± 2 % water clear, colourless liquid with acidic odour
Density	1301 kg / m^3 (20 °C)
Water solubility	miscible in all proportions
Classification	corrosive
Shelf life	2 years

Mode of action

The additive effect of **BIO-SIL®** + **Amasil® NA** is based on the immediate acidification of the ensiled material to a pH-value of 4.4 to 5.0 through **Amasil® NA** and the subsequent controlled fermentation of plant sugars by **BIO-SIL®**. The initial acidification by **Amasil® NA** leads to a sugar saving effect, i.e. to reach a pH-value of 4.4 to 5.0, no plant sugar is needed. Therefore, the entire sugar is available to the added lactic acid bacteria cultures (**BIO-SIL®**) and is rapidly and effectively metabolised to lactic acid until a stable, low pH-value is reached. In addition, the acidification by **Amasil® NA** leads to a hygienisation of the ensiled material as most of the undesirable germs are sensitive to formic acid. **BIO-SIL®** further reduces the pH-value down to a stable pH-value. The combination of **BIO-SIL®** + **Amasil® NA** suppresses malfermentation in the second fermentation phase. This provides a completely new fermentation method, which we developed and put into practice. The sole chemical preservation with formic acid, **Amasil® NA** or other acids would require almost double the amount of acid to establish a stable silage. Furthermore, it would significantly increase the production of silage effluent in wet silages and, with the exception of lactic acid, it would negatively affect the feed intake.

The combination of **BIO-SIL®** + **Amasil® NA** ensures a safe and controlled fermentation process and leads to a higher nutritional value in moderately difficult, difficult, and very difficult to ensile forages. The combination of **BIO-SIL®** + **Amasil® NA** reduces significantly nutrient losses.

Application instructions

Liquid dosing - both components must be applied **separately!**

The ideal application site for **BIO-SIL®** is at the shredder in the area of the shear bar. It is also possible to apply **BIO-SIL®** during the swathing process. The best application site for **Amasil® NA** is in the output chute after the post-accelerator.

Please contact us and we will gladly advise you.

BIO-SIL®

Dissolve 1 bag **BIO-SIL®** in 10 - 200 L unchlorinated water. The **BIO-SIL®** suspension is immediately ready for use. For grass, clover, and alfalfa spray 1 g **BIO-SIL®** (0.1 - 2 L) on 1 t ensiled material. For high-pressure liquid application, suspend 1 bag **BIO-SIL®** in 10 L unchlorinated water and finely spray 0.1 L of the suspension on 1 t ensiled material. The inoculation density is 3 x 10^5 CFU / g fresh forage.

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Application recommendation

The use of **BIO-SIL®** in combination with **Amasil® NA** is shown in table 1. The dose levels include safety loadings for the practice.

Table 1
Recommended application of 1 g **BIO-SIL®** in combination with **Amasil® NA** per ton ensiled material.

Amasil®NA (L / t)

	20 % DM	25 % DM	30 % DM	35 % DM
Ryegrass	2.5	1.5	-	-
Grass in mixed stands	4	3	2	-
Clover	5	4	3	1
Alfalfa	6	5	3.5	1.5
Forage rye	2.5	1.5	-	-

In addition to the use of pure **Amasil® NA**, there is also the option to mix **Amasil® NA** with molasses (table 2 and 3) which has advantages in terms of costs, application, and drift.

Table 2
Recommended application of 1 g **BIO-SIL®** in combination with a mixture of one part of **Amasil® NA** and one part of molasses in litre per ton ensiled material.

Amasil® NA : molasses = 1 : 1 (L / t)

	20 % DM	25 % DM	30 % DM	35 % DM
Ryegrass	4.4	2.6	-	-
Grass in mixed stands	7.0	5.3	3.5	-
Clover	8.8	7.0	5.3	1.8
Alfalfa	10.5	8.8	6.1	2.6
Forage rye	4.4	2.6	-	-

Distribution: Amasil® NA is available in 1000 kg containers or is sold loose from a minimum order of 10 000 L per farm.

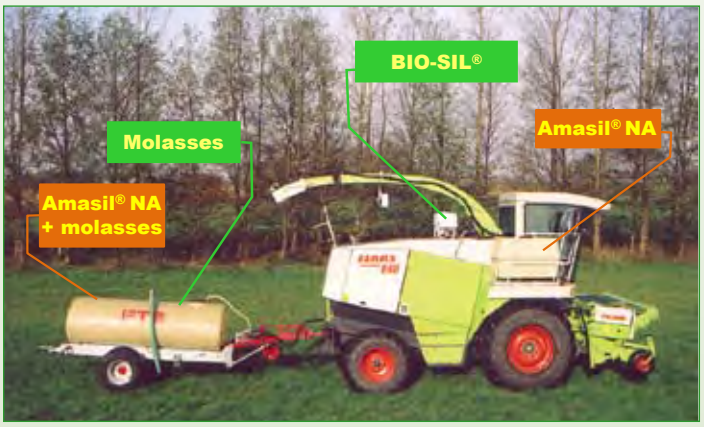
Table 3
Recommended application of 1 g **BIO-SIL®** in combination with a mixture of one part of **Amasil® NA** and two parts of molasses in litre per ton ensiled material.

Amasil® NA : molasses = 1 : 2 (L / t)

	20 % DM	25 % DM	30 % DM	35 % DM
Ryegrass	5.8	3.5	-	-
Grass in mixed stands	9.3	7.0	4.7	-
Clover	11.6	9.3	7.0	2.3
Alfalfa	14.0	11.6	8.1	3.5
Forage rye	5.8	3.5	-	-

Amasil® NA is a silage additive. The user must comply with the Regulation (EC) No 183/2005, laying down requirements for feed hygiene.

BIO-SIL® and Amasil® NA are approved for organic farming.



Technical solution for separate application of BIO-SIL®, Amasil® NA and molasses



Shuttle variant for the application of Amasil® NA

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