HARVEST INTERNATIONAL

Silage additives

made in EU

The forage's quality is a key factor to successful dairy farming – not only regarding the animals' performance but their health as well. Our silage additives **harvest INTERNATIONAL® duo s**, **plus** and **pH** are able to specifically control the fermentation due to enhanced quality of the silage.

The natural stocking of lactic acid-producing microorganisms on the plant depends on climate and forage and varies with each harvesting. Therefore, it is uncertain whether the lactic acid-producing bacteria will be able to dominate the large amount of other microbes and if the fermentation will be successful. It is only possible to lower the pH through the formation of lactic acid.

The faster the drop in pH, the sooner the microbial activity in the silo will stop and fewer nutrients will be dismantled by microbes. Losses will be reduced and more of the harvested dry matter remains – this concerns especially valuable nutrients like sugar and protein.

All **harvest INTERNATIONAL® silage additives** are certified for organic production:

DE-ÖKO-006
may be used in organic production in accordance with Regulation (EC) 2018/848

harvest INTERNATIONAL® duo s

Fermentation and stability after opening

One pouch of 200 g
treats 100 t of forage

harvest INTERNATIONAL® plus

Area of focus:
stability

One pouch of 100 g
treats 100 t of forage

harvest INTERNATIONAL® pH

Area of focus:
fermentation

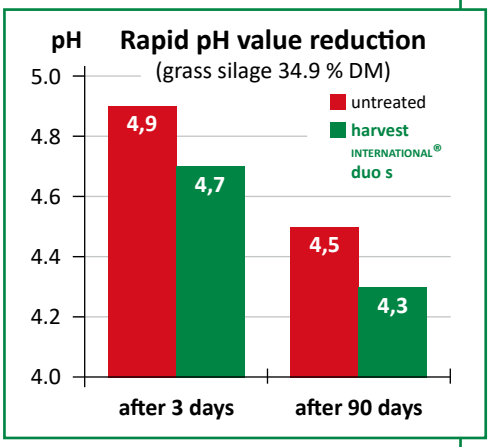
One pouch of 75 g
treats 50 t of forage

DE-ÖKO-006

harvest INTERNATIONAL® duo s

Fermentation and stability after opening

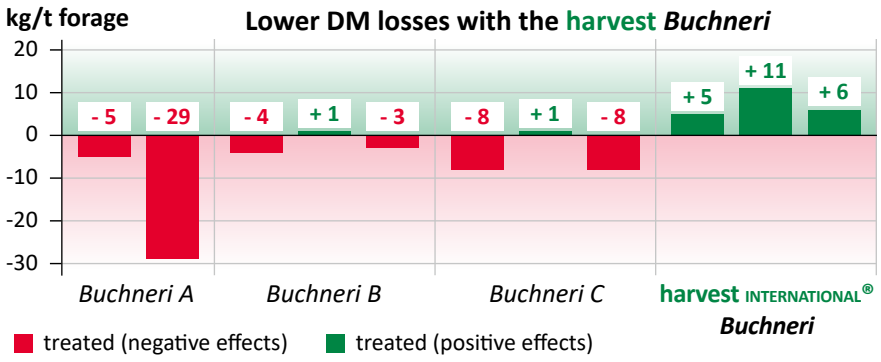
As soon as oxygen is available and the silage warms up, important nutritions vanish because of the yeast's increasing activity. **harvest INTERNATIONAL® duo s** is a combination of a homofermentative strain with a tried and tested *Lentilactobacillus buchneri* (formerly *Lactobacillus buchneri*). The homofermentative strain reliably and quickly lowers the pH value, creating the right climate for *L. buchneri*. The latter then immediately begins to produce acetic acid, thus suppressing the development of yeasts and fungi.



source: University of Animal Science, Lithuania

A special *Lentilactobacillus buchneri*

Lentilactobacillus buchneri is mainly used to improve the stability. Life in a family of bacteria is not unlike real life, as can be seen by the results of trials conducted with various strains of *Buchneri*. Even though Paul and Henry Smith belong to the same family, Paul might be great in math while Henry is only average. And characteristics of the different strains of *Buchneri* differ just as widely. – The following chart illustrates the trial data of four strains of *Buchneri* as published in EFSA* journal.



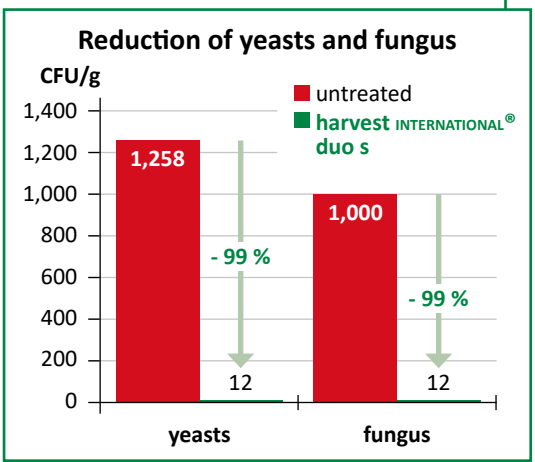
source: data provided by the trials the respective manufacturers submitted to EFSA. Published in EFSA* journal in 2013*

Dry matter losses

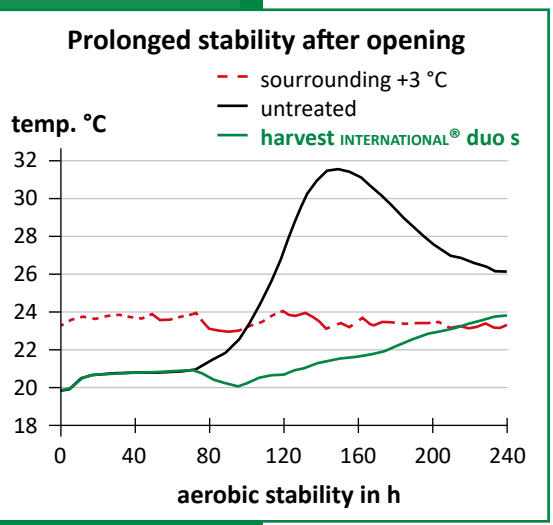
It is common knowledge that dry matter losses with *Lentilactobacillus buchneri* are higher than the ones occurring in untreated silages (see chart on the left). The strain of *L. buchneri* used in **harvest INTERNATIONAL® duo s** and **plus**, however, is atypical as it significantly reduces dry matter losses. Compared to untreated silages, this efficient fermentation saves more nutrients.

Stability after opening

Through using **harvest INTERNATIONAL® duo s**, the stock of yeast and fungus in the silage decreases immensely (see chart on the right). Consequently, the stability after opening enhances (see chart on the left below).



source: University of Animal Science, Lithuania



source: University of Animal Science, Lithuania

Usage recommendations

For all forage crops from 25 to 50 % DM.

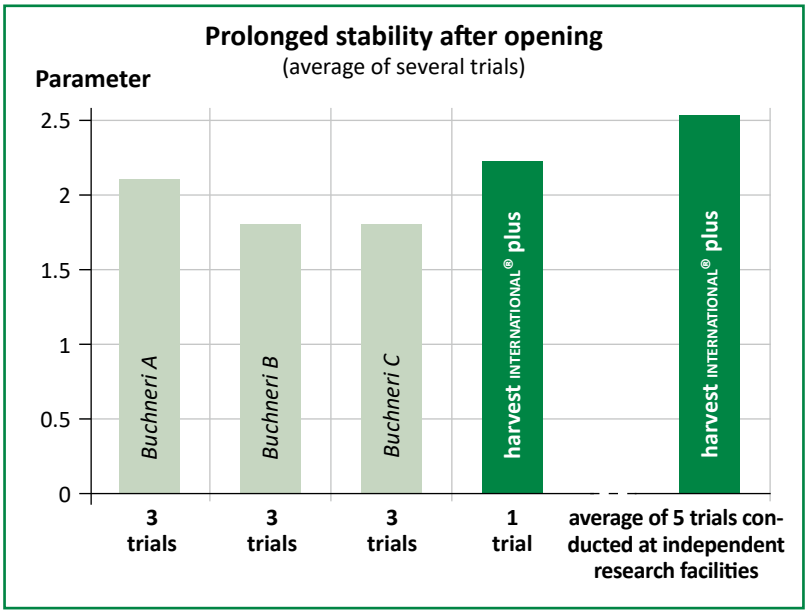
Dosage: 2 g per t

harvest INTERNATIONAL® plus

DE-ÖKO-006

Area of focus: stability

harvest INTERNATIONAL® plus is the product for the improvement of stability after opening.



Data provided by the trials the respective manufacturers submitted to EFSA. Published in EFSA* journal in 2013*

Aerobic stability

In addition to the reduced DM losses and a significant production of lactic acid, the *Buchneri* strain in **harvest INTERNATIONAL® plus** is able to document a reliable improvement in the stability after opening. Once the silage is exposed to air, it remains an average 2.6 times longer stable than untreated silages.

Usage recommendations

- grass, maize and WPS, DM: 30 - 50 %

Silages with high DM contents and inadequate compression as well as an inadequate filling have a tendency to mould. After opening, make sure to secure the cutting surface from penetration of air – e. g. by installing a silage gravel bag air barrier.
Maintain a feeding rate of at least 1.5 m in winter and 2.5 m in summer.

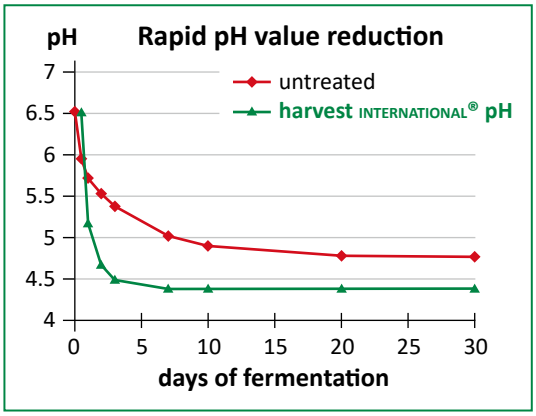
Dosage: Apply 1 g of **harvest INTERNATIONAL® plus** per tonne of forage.

harvest INTERNATIONAL® pH

DE-ÖKO-006

Area of focus: fermentation

- dominant, homofermentative lactic acid bacteria
- fast production of lactic acid in order to rapidly lower the pH
- low sugar consumption, preserves nutrients
- better digestibility of organic substances
- high palatability, improves feed intake



source: Jones, Satter & Muck 1992

Usage recommendations

- wet grass silages
- protein plants (clover, lucerne)
- late cuts of grass in autumn (low sugar)

Dosage: Apply 1.5 g of **harvest INTERNATIONAL® pH** per tonne of forage.

**EFSA = European Food Safety Authority*

Usage instructions

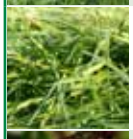
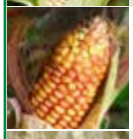
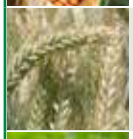
harvest INTERNATIONAL® silage additives

Dissolve the freeze-dried powder in a sufficient amount of water and apply evenly over the forage using the suitable amount of water for your applicator.
The mixed solution should be used up within 48 hours.

Shelf life

18 months from date of manufacture (DOM)
if stored at a temperature of ≤ 22 °C

Recommendation of usage

harvest INTERNATIONAL®	duo s	plus	pH
grass: < 30 % DM resp. contaminated with dirt			✓
grass: > 30 % DM, forage rye	✓		
 grass: > 30 % with a lot of sugar	✓	(✓)	
corn: < 35 % DM	✓	(✓)	
 corn: > 35 % DM	(✓)	✓	
 whole crop cereal silage	✓		
clover, lucerne			✓

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Distributor: