

**bonsilage**

## bonsilage FORTE 2.0 - PROVEN INOCULANT JUST GOT AN UPGRADE

bonsilage FORTE 2.0 represents the next generation of a high-performance silage inoculant designed to control hard-to-ensile forages fermentation and actively protect your silage against clostridia. Building upon a proven blend formulation, FORTE 2.0 maintains the same application rate, same ease of use and same purpose, while introducing two newly selected strains that take clostridia inhibition to the next level. This is not a change for the sake of change. It is a targeted upgrade driven by science and performance to deliver the best fermentation solution for hard-to-ensile forages.

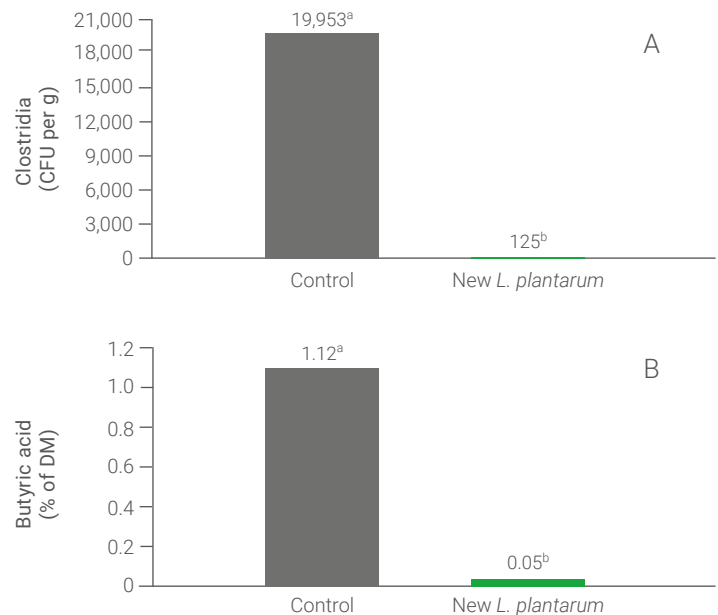
### STRONGER CLOSTRIDIA CONTROL

No matter the amount of preparation, some forages are just naturally hard to ensile. Grass and legume forages are designed and managed in ways that make it particularly difficult to be successful in fermenting and ensiling. If you have been to a silage bunk or pile where butyric acid is present, you most likely remember the fishy, rancid smell that comes along with it. This is a remarkable characteristic of clostridial fermentation, bacteria that ferment carbohydrates, proteins and even lactic acid into acetic and butyric acid.

Butyric acid doesn't only signify unpalatable silage, but a lack of nutrients that were degraded as well. Between the potential for decreased animals' intake and the decrease of carbohydrates, sugars and proteins that were present, silage with butyric acid is a definite situation to avoid.

In terms of acid tolerance, there are three types of Clostridia:

- Low acid tolerance**  
(e.g. *C. sporogenes* and *C. bifermentans*)
- Intermediate acid tolerance**  
(e.g. *C. butyricum*, *C. beijerinckii*)
- High acid tolerance**  
(e.g. *C. tyrobutyricum*)



**Figure 1.** Effect of a newly screened strain of *L. plantarum* on clostridia count (A) and butyric acid concentration (B) of grass silage harvested at 26% DM, 11% Ash and 17% CP after 90 days of fermentation.

<sup>a,b</sup> – means with different superscripts differ ( $P \leq 0.05$ ).

Source: ISF, 2023.

Meaning that clostridia can be harmful to fermentation in numerous ways. To combat the potential of clostridia, a rapid decline in pH is the simple solution. However, due to the variety of clostridia groups cited above, it's important that we have control over the acid production that leads to a pH drop and actively control clostridia growth. That's where bonsilage FORTE 2.0 comes in.

## A FAMILIAR SILAGE INOCULANT

The original bonsilage FORTE earned its reputation through a carefully designed combination of homofermentative bacteria: *Pediococcus acidilactici*, *Lactiplantibacillus plantarum*, and *Lactococcus lactis*.

Combination designed to rapidly dominate the silage microbiome and drive lactic acid fermentation, quickly reducing pH, while actively inhibiting clostridia growth.

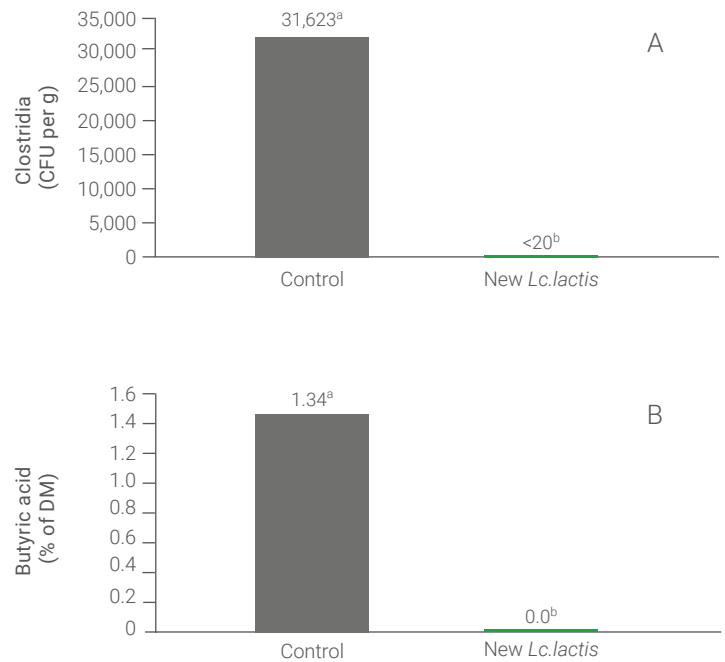
With the coming of FORTE 2.0, this will all remain unchanged! But what really sets FORTE 2.0 apart are the two new strains of *L. plantarum* (Figure 1) and *Lc. lactis* (Figure 2), selected through a rigorous internal research project, with unprecedented clostridia inhibition capabilities, resulting in an already familiar product with a significant stronger defense against clostridial fermentation.

## SAME PURPOSE. SAME APPLICATION. STRONGER PROTECTION!

FORTE 2.0 remains easy to apply:

- Same handling and mixing procedures
- Same dosage (2 g/ton of forage) and application rate (300,000 CFU/g of forage)
- Same target forages (grass, alfalfa and small grain haylages)

FORTE 2.0 was developed with the goal of offering our customers a stronger protection against clostridial fermentation while having a seamless transition of product use. Retaining the proven capabilities of bonsilage FORTE, while enhancing it with next-generation bacterial strains to meet the fermentation challenges of hard to ensile forages.



**Figure 2.** Effect of a newly screened strain of *Lc. lactis* on clostridia count (A) and butyric acid concentration (B) of grass silage harvested at 23% DM, 12% Ash and 18% CP after 90 days of fermentation.

<sup>a,b</sup> – means with different superscripts differ ( $P \leq 0.05$ ).

Source: ISF, 2023.

