

Optimising Silage: Management, Testing and Choosing the Right Inoculants

Silage quality poses a complex challenge, impacting the nutritional value, safety and effectiveness of feed. Base nutrition is determined by forage type and harvest timing, with further feed value influenced by managing air and microbiology during fermentation, storage and feed out. In fact, effective silage storage is just as vital as ensiling. Damage to the plastic cover – whether standard, vacuum or oxygen barrier – can allow air to enter, changing the silage’s microbiology and fermentation characteristics. This can lead to the production of moulds, mycotoxins and undesirable acids, resulting in greater losses and reduced palatability.

Mycotoxin Influence on Silage Quality

Mycotoxins are detrimental to silage quality because they can contaminate feed, leading to reduced nutritional value, compromised animal health and decreased feed intake.

The Alltech Harvest Analysis, a decade-long global initiative, is a comprehensive step in understanding the complexities of new crop quality and mycotoxin prevalence worldwide. The programme captures trends and enables robust data comparisons across years and regions. This analysis plays a pivotal role in empowering feed and livestock producers with the knowledge they need to make informed decisions.

The Effect of Weather Conditions on Global Harvest

Environmental conditions significantly influence mycotoxin contamination in crops. The most important factors for mould growth, development and mycotoxin contamination are temperature and humidity during crop development.

Recently, Europe has experienced varied weather conditions impacting the harvest. Regions marked in green and dark green indicate areas with heavy rainfall, which may delay harvest. Conversely, areas in orange and red are experiencing hot and dry weather, which favours aflatoxin production in corn.

France and Romania may be affected, as they produce a lot of corn and have experienced high precipitation. This environment is conducive to *Fusarium* species, which produce mycotoxins such as deoxynivalenol (DON), T-2 and HT-2 toxins, zearalenone (ZEN), fumonisins (FUM), and emerging mycotoxins.

Contrarily, many regions such as southern Hungary are experiencing very hot and dry weather, which is ideal for *Aspergillus flavus*, a producer of aflatoxins. Similarly, Spain is very hot and dry, and as in previous years, a high incidence and significant levels of aflatoxins are expected.

This year in the U.S., recent observations in the Midwest show promising corn crop conditions with regional variations. From

CropProphet - Observed Weather Anomalies

Precipitation Anomaly (% of Normal)
7 Days Ending 18:00 UTC 24 July 2024

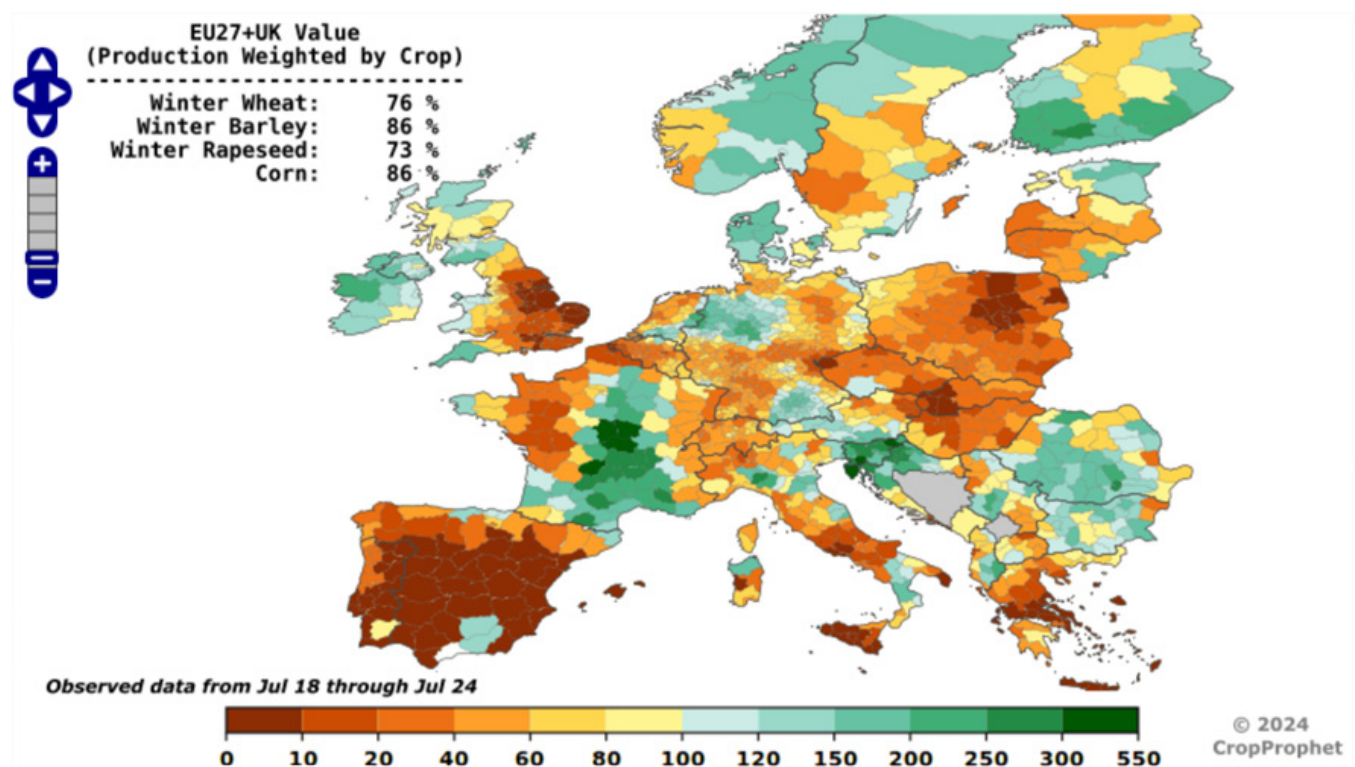


Figure 1: Observed weather anomalies

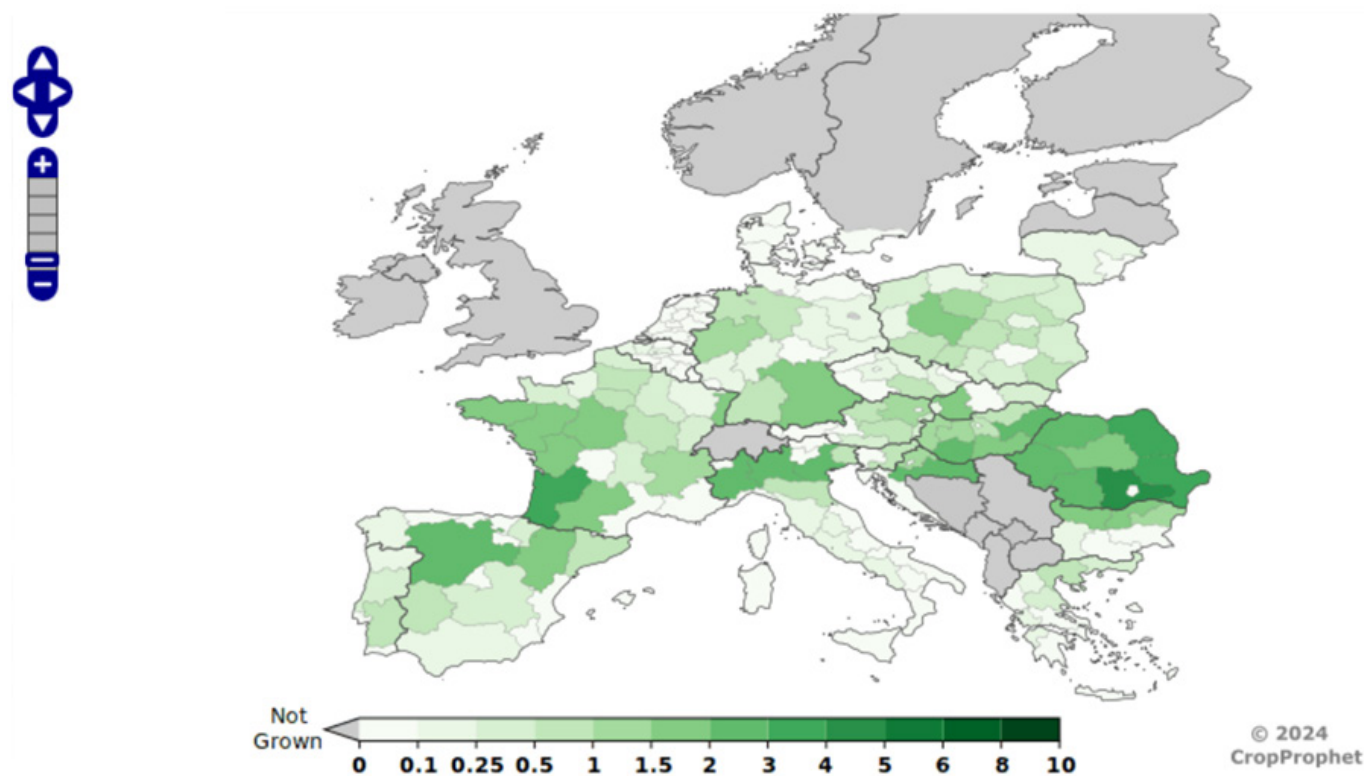


Figure 2: Corn producing areas

Indianapolis to northern Illinois, the corn is progressing well, with most fields tasseled and ample rainfall. Northern Illinois into Iowa also looks good but with less tasseling and more maturity variation. Iowa and Minnesota show delayed maturity due to earlier wet weather.

Stay tuned for further updates on crop conditions and mycotoxin risks as the Harvest Analysis Programme continues.

Why is Testing Silage Important?

Given the potential risks posed by mycotoxins and other fermentation issues, regular testing of silage is essential to ensure feed quality and safety. Regular silage testing is essential for dairy farmers aiming to maximise milk production from forage. Especially as winter approaches, analysing silage helps determine the exact supplementary feed needed, ensuring optimal nutrition and cost efficiency.

Key components to test include:

- **Dry Matter Digestibility (DMD):** Measures the percentage of digestible organic matter, indicating usable energy. Higher DMD can reduce the need for additional concentrate feeds.
- **Dry Matter (DM):** Indicates the actual nutritional content. High DM promotes intake, but excessively dry silage can lead to mould and heating issues.
- **Crude Protein:** Reflects the quality of the grass at harvest. Higher protein content reduces the need for supplementary protein, lowering feed costs.
- **Metabolisable Energy (ME):** Represents the energy available from silage. Higher ME supports better milk production.
- **pH:** Indicates silage acidity and fermentation quality. Proper pH levels ensure silage stability and feed intake.

By also testing these components, farmers can fine-tune their feeding strategies, improving herd health and farm profitability. Silage testing provides crucial insights to enhance forage quality and maximise returns.

An Overview of Silage Inoculant Types

Based on the analysis above, Alltech's experts can provide tailored advice on enhancing silage management, from harvesting and storage techniques to inoculant selection.

Even the best-managed silage can sometimes become spoiled or contaminated. An effective silage inoculant provides extra protection by enhancing the fermentation process, improving nutrient retention, and ensuring feed quality over time.

Silage inoculants come in three main types:

- **Homofermentative inoculants** maximise dry matter and nutrient retention.
- **Heterofermentative inoculants** or those combined with salts are ideal for early opening or slow feed out, as they reduce heating despite lower dry matter retention.
- **Combination inoculants** balance efficient fermentation, early opening and long-term stability.

With Alltech's leading-edge Egalis® range of silage inoculants, fermentation is controlled by high-specification homolactic bacteria and broad-spectrum inhibitory salts. Egalis technologies include:

- **Egalis® Ferment:** Ideal for all forages, this solution harnesses the combined power of *Lactiplantibacillus plantarum* and *Pediococcus pentosaceus* to rapidly achieve a stable final pH, regardless of dry matter or buffering capacity.
- **Egalis® Rapid:** Designed for maize/corn and sorghum silage, Egalis Rapid employs *Pediococcus pentosaceus* and *Lactocaseibacillus rhamnosus* to drive lactic fermentation while maintaining dry matter and palatability.
- **Egalis® Stability:** Suitable for all forages, especially high-dry-matter silage at higher risk of heating, this technology uses *Lactiplantibacillus plantarum*, *Pediococcus pentosaceus* and potassium sorbate to inhibit yeast and mould growth, bolstering silage stability during feeding.



Hunland Group: Emphasising Forage Quality

Based in Hungary, Hunland Group is a global leader in livestock farming, managing 38,000 cattle, including fattening cattle, calves, dairy cows and breeding heifers. Committed to innovation and sustainability, Hunland Group leverages advanced farming techniques and partnerships with industry leaders like Alltech to enhance feed quality and efficiency.

Since implementing Egalis Ferment, Hunland has seen remarkable improvements in feed production efficiency and cost management. Simply by adding this one Alltech solution to preserve nutritional content and prevent losses, Hunland is creating significant cost savings.

“By achieving such high nutritional content in the product, we were able to reduce the cost of the feedstuff per unit, which is essential for me,” says Zoltán Guti, production director at Hunland. “We place a huge focus on this, aiming to store and preserve the feedstuff with high nutritional content with minimal losses. This helps to reduce the need for additional feed supplements in the total mixed ration (TMR), thereby reducing our costs and the cost per kilogram of feed for milk production.”

Key Insights into Silage Quality and Effective Harvest Management

Effective silage management is the cornerstone of maximising feed efficiency and nutritional value. By meticulously overseeing each stage, farmers can significantly enhance their silage quality and overall farm productivity.

Alltech recognises the need to holistically support producers, ensuring that animals receive the best nutrition every day. The company’s programmes and technologies, such as mycotoxin testing, in-vitro ration analysis, nutritional technologies and expert technical support, combine to meet the growing demands of modern livestock production.

For more information on Egalis and other Alltech solutions and services, visit <https://www.alltech.com/egalis>, or contact your local Alltech representative for farm-specific advice.



Gordon Marley

Gordon Marley oversees all silage-related technologies and services at Alltech. Managing the EGALIS projects across Europe, he previously served as the Global Sil-All Manager, showcasing his wealth of knowledge and expertise

in the field in over 45 countries through practical support and training as well as developing condition specific formulations. Gordon holds professional qualifications in Biology and Microbiology as well as being a cow signal trainer and a master black belt in six sigma. With over 30 years professional experience in the silage field Gordon has positively influenced dairy and beef producers, improving feed conversion efficiencies and farm profitability along the way.