Safesil Pro and Safesil Challenge  
Proven, guaranteed preservation of all your valuable forage crops

THE COMPLETE ENSILING PACKAGE

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A special blend of food-grade preservatives that eradicates all the major spoilage organisms. Proven to be supremely effective across a wide range of dry matters and crops.

SilaPactor
Available in a range of widths from 2.1 metres to 4 metres, a SilaPactor can speed up the compaction process, saving both time and fuel, and can increase dry matter compaction density by up to 40% when compared to conventional tractor rolling.

O2 Barrier 2in1
Applied as a single sheet which transforms into two on the clamp. O2 Barrier 2in1 comprises a protective, high-quality top layer covering a layer of very oxygen impermeable, polyamide vacuum film. It provides quick and effective clamp sealing with reduced workload, and up to a tenfold decrease in oxygen permeability.

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Made from 90 per cent recycled material with a life expectancy of around 15 years. ClampTiles are ergonomically designed for ease of handling. Unlike tyres, they don't harbour rainwater and debris, and when not in use can be stacked on pallets.

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A 500g/m² heavy-duty green silage cover with seamed, stitched edges to prevent fraying or unravelling. ClampNet offers added protection from attack by birds and vermin and also helps to maintain compaction.

KlampClips
Made from stainless, spring steel, KlampClips are like an extra pair of hands when lining clamp walls with side sheets. Available in two sizes (100-150mm clamp wall width x 700mm long, and 200-300mm clamp wall width x 1000mm long), both are available in packs of 25.

Side Sheets
Heavy-duty, 150μm clear plastic side sheets supplied in 50-metre rolls and convenient widths of 4, 5 and 6 metres.

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SilaPactor, ClampTiles, ClampNet and KlampClips are trademarks of Kelvin Cave Ltd.
Safesil preservatives offer a proven approach to protecting your silage, the most valuable and versatile of all your feed crops.

Developed in conjunction with SLU, Swedish University of Agricultural Sciences, Safesil preservatives use only human food-grade preservatives that are proven to be effective in preventing losses from bacteria, yeasts, fungi and moulds.

Ideal for grass, maize, wholecrop and legume silages, Safesil Pro and Safesil Challenge can be used on clamped, bagged and baled forage to produce a clean fermentation, resulting in silage that is palatable and rich in nutrients.

Widely trialled throughout mainland Europe and in the UK, Safesil has been tried, tested and approved by British farmers on all types of silage including grass, maize, wholecrop/arable, clover and Lucerne.

You can increase your profits by feeding silage treated with Safesil Pro or Safesil Challenge because:

- They protect silage effectively against heating that results from yeast and mould activity.
- They destroy unwanted, nutrient-wasting bacteria such as clostridia and enterobacteria, providing a clean environment for lactic acid bacteria to achieve a rapid reduction of silage pH, and eliminating the risk of butyric acid production which lowers the nutritional value and palatability of silage.
- Safesil products are flexible and have been comprehensively tested for all different silages (maize, legumes, wholecrop and grass) with dry matter (DM) contents from 15 to 50%, a range of application rates and in different storage systems, including clamps, bags, bales and silos.
- Safesil products are safe because they contain only human food-grade preservatives so they will not irritate the skin or corrode machinery.

** Aerobic Stability **

Aerobic instability can affect palatability and increase the risk of mycotoxin formation. Feeding aerobically unstable material can reduce feed intake and/or growth or milk production. Preventing aerobic instability is a vital aspect of producing high quality forage - Safesil preservatives have the ability to maintain stability over very prolonged periods.

** Temperature **

Increased temperature is one of the first signs of aerobic instability. An increase in temperature is caused mainly by yeasts and moulds consuming valuable nutrients in the silage.

In most cases these will grow in the presence of oxygen so good compaction and covering the silage securely is essential. Kelvin Cave Ltd recommend the use of a SilaPactor to increase the degree of compaction in the clamp, and O2 Barrier 2in1 or ClampFilm primary silage sheets to exclude air from the clamp which, when used in conjunction with Safesil, will provide excellent stability from the top to the bottom of the clamp face during feed-out.

** Feed Value **

During the fermentation process the nutritional value of the feed can be affected not only by growth from undesirable bacteria, but also by the balance between lactic acid (LA) and sugars (WSC). Lactic acid bacteria consume WSC when producing lactic acid.

For a successful fermentation enough LA to lower the pH of the silage is required, without consuming too much WSC. If LA levels are above 10% and too much sugar is consumed the palatability of the silage will be reduced. Although LA and WSC provide important nutritional value to the silage they can both be used by undesirable microbes as a substrate. Safesil helps to control the fermentation process to retain as much feed value as possible.

** Putting Safesil Pro to the test **

Safesil Pro is designed for use on higher DM silages. Grass, grass/clover and Lucerne silage above 28% DM; wholecrop/arable silages and maize silage up to 50% DM.

Independent tests** in the UK show how Safesil Pro can help produce better silage reliably and consistently.

** Test results - Yeasts and moulds **

<table>
<thead>
<tr>
<th>Safesil Pro</th>
<th>Yeasts and moulds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inoculant</td>
<td>282 cfu/g</td>
</tr>
<tr>
<td>Control</td>
<td>213,796 cfu/g</td>
</tr>
<tr>
<td>Control -</td>
<td>19,498,446 cfu/g</td>
</tr>
</tbody>
</table>

Growth of yeasts and moulds normally occurs in the presence of oxygen due to insufficient compaction and/ or leaking storage facilities. Safesil will inhibit the growth of yeasts and moulds on your silage, but good ensiling practice is also essential for best results.

** Time to heat hours (Wholecrop wheat approx 43% DM) **

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Time to heat (Hrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inoculant + Potassium sorbate</td>
<td>36.26</td>
</tr>
<tr>
<td>Inoculant</td>
<td>51.41</td>
</tr>
<tr>
<td>Untreated</td>
<td>58.17</td>
</tr>
</tbody>
</table>

** Dry Matter (DM) Losses **

Unlike other silage treatments, Safesil preservative kills the microorganisms (enterobacteria, clostridia and yeasts) that consume valuable nutrients in the clamp, thereby minimising DM losses during storage.

** DM losses after 90 days' ensiling **

<table>
<thead>
<tr>
<th>Treatment</th>
<th>DM Losses (g/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safesil Challenge</td>
<td>2.8</td>
</tr>
<tr>
<td>Untreated</td>
<td>14.8</td>
</tr>
</tbody>
</table>

** Putting Safesil Challenge to the test **

Safesil Challenge is designed for lower DM grass, grass/clover and Lucerne silage where the risk of a poor fermentation and consequent high fermentation losses is greater.

Poor fermentation, caused by the activity of enterobacteria and clostridia, produces undesirable fermentation products, loss of true protein and reduction in palatability of silage.

| Grass/clover silage 20% DM Safesil Challenge 2ltres/tonne |
|-----------------|-------------------|
| DM Losses (g/kg) | DM Losses (g/kg) |
| Safesil Challenge | 10.9 |

** Undesirable microbial growth ferments the sugars in the silage lowering the feed value and palatability of the silage. **

** Butyric Acid **

<table>
<thead>
<tr>
<th>Butyric Acid</th>
<th>Treated value: 0.04</th>
</tr>
</thead>
<tbody>
<tr>
<td>Untreated value: 1.7</td>
<td></td>
</tr>
</tbody>
</table>

** Acetic Acid **

<table>
<thead>
<tr>
<th>Acetic Acid</th>
<th>Treated value: 0.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Untreated value: 2.6</td>
<td></td>
</tr>
</tbody>
</table>

** Sugars **

<table>
<thead>
<tr>
<th>Sugars</th>
<th>Treated value: 4.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Untreated value: 10.9</td>
<td></td>
</tr>
</tbody>
</table>

** Ethanol **

<table>
<thead>
<tr>
<th>Ethanol</th>
<th>Treated value: 0.76</th>
</tr>
</thead>
<tbody>
<tr>
<td>Untreated value: 2.6</td>
<td></td>
</tr>
</tbody>
</table>

** Butanediol **

<table>
<thead>
<tr>
<th>Butanediol</th>
<th>Treated value: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Untreated value: 0.5</td>
<td></td>
</tr>
</tbody>
</table>

** Dry Matter (DM) Losses **

<table>
<thead>
<tr>
<th>DM</th>
<th>0</th>
<th>5</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>13.8</td>
<td>14.8</td>
<td>15.8</td>
<td>16.8</td>
<td>17.8</td>
<td>18.8</td>
</tr>
</tbody>
</table>

** Temperature increase **

<table>
<thead>
<tr>
<th>Temperature increase</th>
<th>Control - lactic acid bacteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>102.70 hrs</td>
<td>No additive</td>
</tr>
</tbody>
</table>

** Tests performed by Dr D Davies, Aberystwyth University. 2009. **

** For more advice and information visit kelvincave.com and click on FAQs. **

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Porous fermentation, caused by the activity of enterobacteria and clostridia, produces undesirable fermentation products, loss of true protein and reduction in palatability of silage.

Grass/clover silage 20% DM Safesil Challenge 2ltrs/tonne

Test results - Temperature
Grass silage DM approx. 30%. Measured as hours to °C temperature increase. Inoculant - lactic acid bacteria

<table>
<thead>
<tr>
<th>Safesil Pro</th>
<th>50% DM No heating &gt; 260 hrs</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inoculant</td>
<td>60.30 hrs</td>
<td>102.70 hrs</td>
</tr>
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<td></td>
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► The best silage preservatives for nutrient retention
► The best for guaranteed* aerobic stability
► The best for eradicating silage spoilage organisms
► The best return on your investment

*Journal of Dairy Science 94:824-831

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Email: sales@kelvincave.com
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