The zone above 57°C is known as the kill-zone. The heat in hot water must stay within this temperature zone in order to damage the plant structure and allow effective and efficient thermal heat transfer from the leaf to the root. Research shows that stable delivery of heat at 80°C and above for the first five seconds is crucial to ensuring the most effective plant kill. Outside of the kill-zone (below 57°C) there is little to no effect on killing or substantially damaging the plant.

Unlike most steam systems, Foamstream systems are the only systems on the market with an electronically-automated dual phase burner, which guarantees stable temperature and pressure. Stabilising temperature and pressure means that we can guarantee the system stays consistently in the kill-zone unlike steam systems that fluctuate in and out of the kill-zone.
“Weeds treated with Foamstream require just two to three treatments per season or as little as one if you’re treating moss and algae. Steam systems would require ten to twelve treatments per season. Fewer treatment cycles mean lower labour costs and greater cost savings including less use of water and diesel.”

Dr Mike May

**Graph showing the effect on temperature stability when comparing Foamstream dual-phase boilers to steam single-phase boiler systems.**

*Kill-zone = 57+ Celsius. The high temperature causes the plant structure to break down.*

“*Kill-zone = 57+ Celsius. The high temperature causes the plant structure to break down.*

“How can Foamstream contain more active ingredients but be more cost-effective to use than a steam system?

“The foam ensures that the heat is retained in the hot water for longer. This allows the most efficient transfer of heat energy from water to plant by preventing heat loss to the atmosphere. The result is the most effective thermal transfer from the leaf to the root ensuring the plant is killed or severely damaged. The Foamstream process sterilises seeds and spores therefore requires fewer annual treatments due to minimising new growth. Overall this means that using Foamstream unequivocally represents the lowest total cost of ownership for users.”

Dr Mike May
Foamstream

- Kills the weeds
- Sterilises seeds and spores
- Kills or sufficiently damages the root

Steam

- Kills the leaves
- Some effect on seeds
- Very weak effect on root structure

Below 57°C the treatment has no effect on the vegetation.

*Time taken for the steam/Foamstream to travel from lance to weed.

**Time taken to cover the weed with the steam/Foamstream
WHY FOAMSTREAM OVERTIME WILL COST YOU LESS THAN A STEAM SYSTEM DESPITE HAVING A HIGHER CAPITAL COST AND ONGOING CONSUMABLE COST.

**NB:** this graph uses USD ($) as the currency

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Unit (USD)</th>
<th>Steam</th>
<th>Foamstream</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hourly labour rate</td>
<td>$</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Number of hours worked in a day</td>
<td>Hours</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Daily labour cost</td>
<td>$</td>
<td>125</td>
<td>125</td>
</tr>
<tr>
<td>Consumable cost (Foamstream, diesel, petrol and descaling agent)*</td>
<td>$</td>
<td>52.5</td>
<td>174.5</td>
</tr>
<tr>
<td>OPEX per day (5 hours of actual work)</td>
<td>$</td>
<td>177.5</td>
<td>299.5</td>
</tr>
<tr>
<td>100% treatment area in an hour</td>
<td>m²/hour</td>
<td>750</td>
<td>5250</td>
</tr>
<tr>
<td>Treatment area covered in 5 hours</td>
<td>m²</td>
<td>3750</td>
<td>26250</td>
</tr>
<tr>
<td>Cost per m²</td>
<td>$</td>
<td>0.0473</td>
<td>0.0114</td>
</tr>
<tr>
<td>Comparative cost of single treatment area of 929 m²</td>
<td>$</td>
<td>473</td>
<td>114</td>
</tr>
<tr>
<td>Treatment cycles per year</td>
<td>Treatments</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Comparative cost of annual treatment area of 929 m²</td>
<td>$</td>
<td>4,733.33</td>
<td>342.29</td>
</tr>
</tbody>
</table>

*Assumptions: (L = litre)
Steam system consumes: 9 L diesel, 0.3 L of descaling agent, 1 L of petrol per hour: $7.20 + $2.50 + $0.80 = $10.50
Foamstream consumes: 8 L of diesel and 3 L of foam = $6.40 + $28.50 = $34.90
Price of petrol: $0.75 per L (0.21 gal)  Price of diesel: $0.80 per L (0.21 gal)  Price of Foamstream: $28.50 per hour

ENVIRONMENTAL CREDENTIALS OF FOAMSTREAM

+ Made from 100% biodegradable and environmentally friendly neutral plant oils and sugars.
+ Approved for organic use by multiple accreditation bodies across Europe and North America.
+ Safe for use around people, animals and delicate ecosystems including waterways.
+ Uses less water and diesel to achieve the same results as a steam system.

WHAT DO OPERATORS AND THE PUBLIC THINK ABOUT THE FOAM?

“There are so many benefits to choose from but the single best thing about Foamstream has to be the cleanliness and the finish once the Foamstream has been applied. We’re excited about Foamstream’s possibilities as a public engagement tool as well as the positive feedback from potential clients and increased chances of getting onto new approved supplier lists.”

Terry Burns, Senior Contract Manager, idVerde, UK.

“One of our highlights was the interest of passers-by and interaction with the public when we were out and about using the product”.

Neil Reeves, Countryside Manager, SWLT, UK.