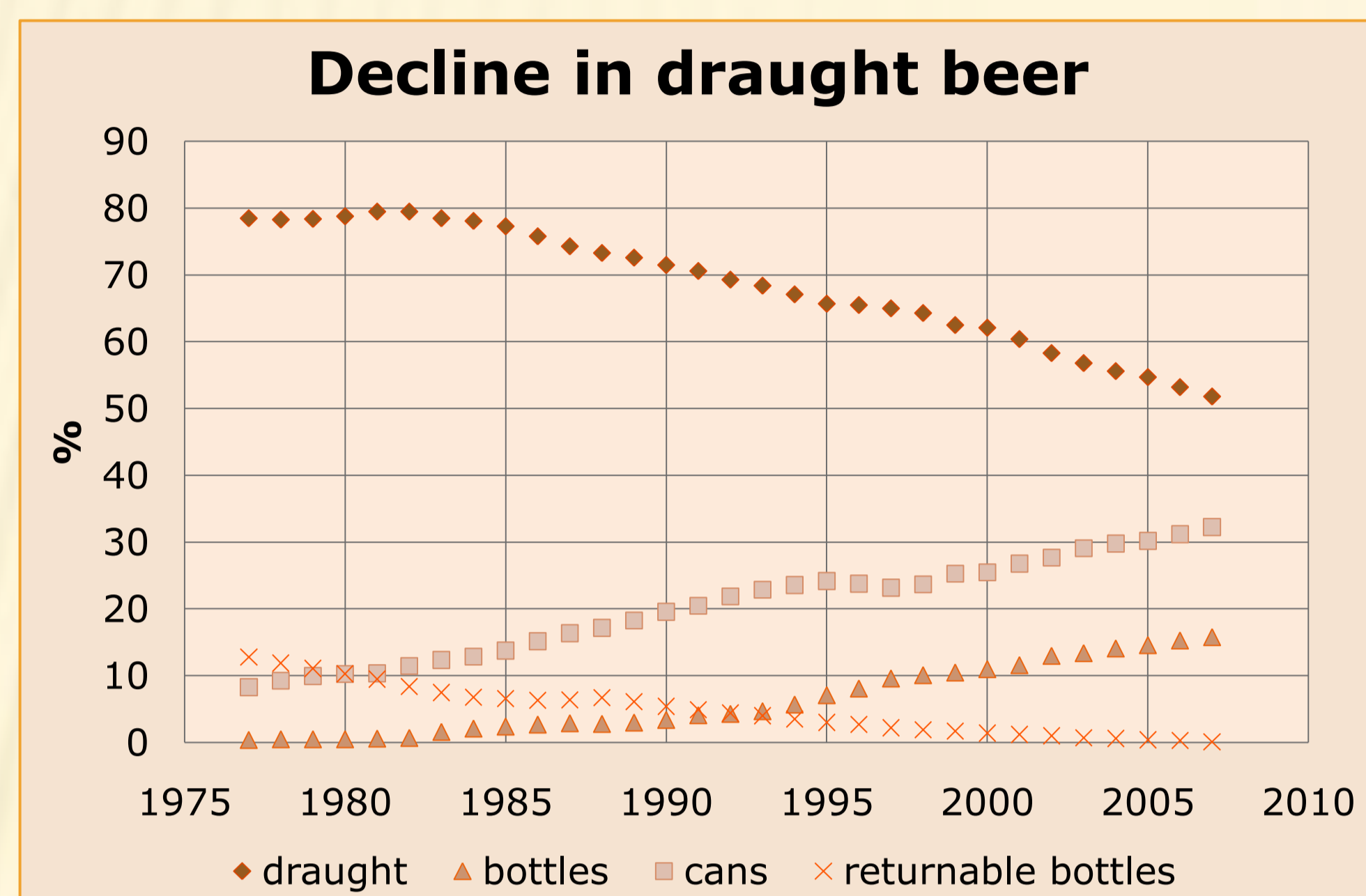


ASSURING THE MICROBIOLOGY OF DRAUGHT BEER

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Draught beer in the UK

Beer volumes in the UK are in long term decline, with the packaging mix increasingly shifting from draught beer to beer in can or bottle.



Of the many socio-political factors implicated in the demise of draught beer, poor or indifferent beer quality is of particular significance. Key drivers in assuring quality include 'fit for purpose' dispense technology, appropriate turnover of products and a hygienic 'mindset' from all those involved 'behind the bar'.

Draught beer hygiene should best be considered 'end to end' i.e. from container to tap/glass. Central to this is regular and effective line cleaning, ideally every seven days using a commercial alkali-based cleaner.

Regular line cleaning regimes can be compromised through the mistaken belief that the associated costs do not warrant seven-day schedules and can, accordingly, be relaxed without risk. The implications of this and associated opportunities are reported here.

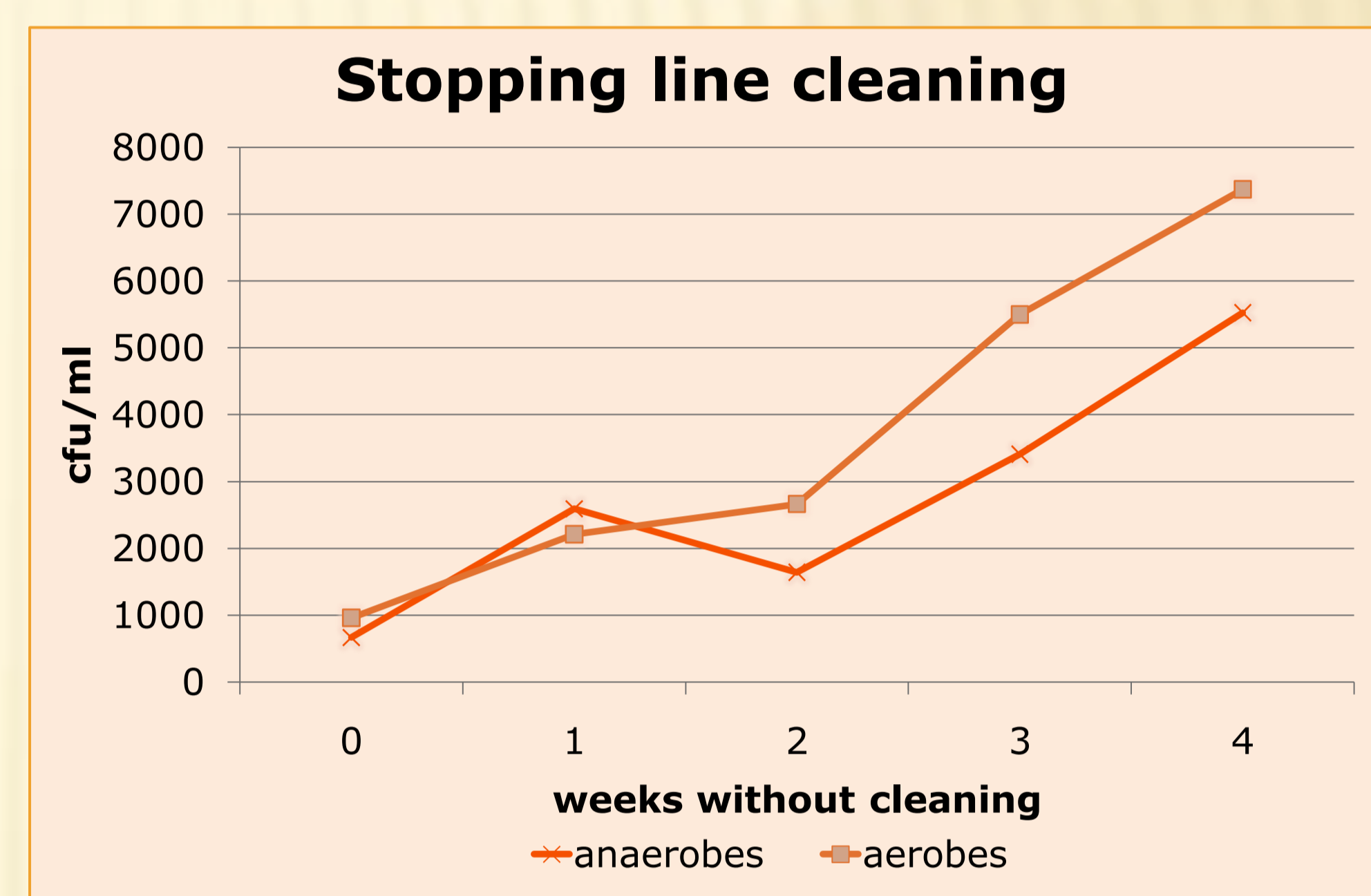
Line cleaning trade trials

- ❑ Three 'global' draught lagers (3.8, 4 and 5% abv) were monitored weekly (just prior to line cleaning) in two commercial accounts (annual throughputs of 500 and 1000 hl).
- ❑ Pre-trial both accounts cleaned lines weekly.
- ❑ Samples were taken after pulling through a litre of beer to drain. Aerobic and anaerobic microorganisms were quantified using WLD and Raka Ray media.

Alongside this work, a technology (BeerSaver™) that emits a continuous low frequency electromagnetic radiation was evaluated. This is reported to enable line cleaning frequency to be increased to every four weeks without risk to product quality. BeerSaver™ (www.beersaveruk.com) is applied via a bespoke dispense line between container and fob detector or pump.

Insights – line cleaning

Over a 12 week period of monitoring, weekly line cleaning maintained both aerobic and anaerobic microorganisms in three different lager brands at $< 1 \times 10^3$ /ml. This is in accord with previous observations of the microbial loading of good quality beer. Stopping line cleaning resulted in a week on week increase in microbial counts and associated decrease in quality through increased levels of the off-flavour diacetyl.



Insights – BeerSaver™

The technology was evaluated in the three beers over a 12 week period *without line cleaning* and was found to control microbial loading successfully for the initial nine weeks, after which the microbiology deteriorated. Average weekly counts are reported below \pm sem.

	Control (n=36)	Trial (n=27)
Line cleaning	weekly	no cleaning
aerobes (cfu/ml)	958 \pm 157	494 \pm 129
anaerobes (cfu/ml)	665 \pm 129	198 \pm 59

'Forcing' trade samples at ambient temperature reinforced the insight that the technology (LHS of image) had a positive impact on beer microbiology.



Conclusions

- ❑ Weekly cleaning of beer dispense lines is a key tool to maintaining draught beer quality.
- ❑ Reducing the frequency of line cleaning results in an increase in the microbial load.
- ❑ Trials with BeerSaver™ suggest that the frequency of line cleaning can be safely increased from one to four weeks without threat to product quality.
- ❑ It is anticipated that this technology disrupts biofilm attachment and/or growth.