

THE SENSORY BENEFITS OF MACHINE CLEANING

BY CHRISTOPHER SHORT AND INSTAURATOR

A widely asked question in the coffee industry is “how often should I clean my coffee machine?” Suggestions vary but include daily, weekly and every so many kilos of coffee used.

But who really knows? There is no published research to support any of these notions. To answer this question the authors conducted a controlled trial to correlate the frequency of espresso machine cleaning with the taste profiles of extracted coffee.

The problem with undertaking such research is that many variables can affect the taste of coffee.

- The quality and consistency of the roasted beans.
- The consistency and ability of the barista and hence the grind, dosing, packing, extraction time and volume of espresso.
- The reliability and ability of the judges tasting and commenting on the taste, and
- The performance of the espresso machine.

Furthermore, finding a café or coffee shop to conduct the trial is not without challenge. The café must follow a strict protocol where at least one group of the machine is not cleaned at all.

The research we have undertaken has attempted to control these factors so that only the cleanliness of the machine is a factor in the taste of coffee.

For this, the authors conducted the research using the following protocol.

A **Michel's Espresso** café in Sydney volunteered to undertake the trial. The weekly volume of coffee used at the store averaged 6 kilograms.



Chris Short, Hazel De Los Reyes, Scott Callaghan, Emily Oak and Instaurator

An Azkoyen Vienna 3-group espresso machine and grinder were used with the three brewing groups labelled and reserved for the following procedures.

Group 1 was cleaned daily using **Cafetto® Espresso Clean**.

Group 2 was cleaned weekly using **Cafetto® Espresso Clean**.

Group 3 was not cleaned at all over the period of the trial.

The trial period ran over a 19 day period. All groups were to be used in rotating sequence to ensure consistent use of the groups.

Using a Scafe Espresso Machine Thermofilter-Temperature Device, all groups were checked for temperature and pressure to ensure cupping flavours would not be affected by varying brew group performance.

The results were:

Group Position	Left	Middle	Right
Cleaning Schedule	Daily	Weekly – Each Saturday	Not Cleaned
Temperature	92.4°C	92.6°C	92.5°C
Pressure	10.5 bar	10.5 bar	10.4 bar

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To enable consistent and competent comparisons of extracted espresso during the trial, three expert sensory judges formed the assessment panel to taste to espressos after extraction.

They were:

Australian Cupping Champion 2007: **Hazel De Los Reyes**

World Barista Championship Co-ordinator: **Emily Oak**

Former Executive Director of the World Barista Championship and author: **Instaurator**

For the same reason 2007 Australian Barista Champion, **Scott Callaghan**, extracted the espressos and made the cappuccinos in the trial.

The coffee used in the trial was Michel's Espresso blend which was roasted 22 days prior to the trial.

Espressos were extracted from each group and presented blind to the judges for their assessment of the flavour profile. The sensory judges then rated the espressos according to the following criteria:

1 – 10 (1 very poor; 10 outstanding)

Colour of crema

Consistency of crema

Persistence of crema

Taste Balance

Tactical Balance

Overall taste / impression

The three judges scores were then summed to provide a final score for each group's extraction.

These extractions and scores were calculated for each brew group at the end of the 19-day trial.

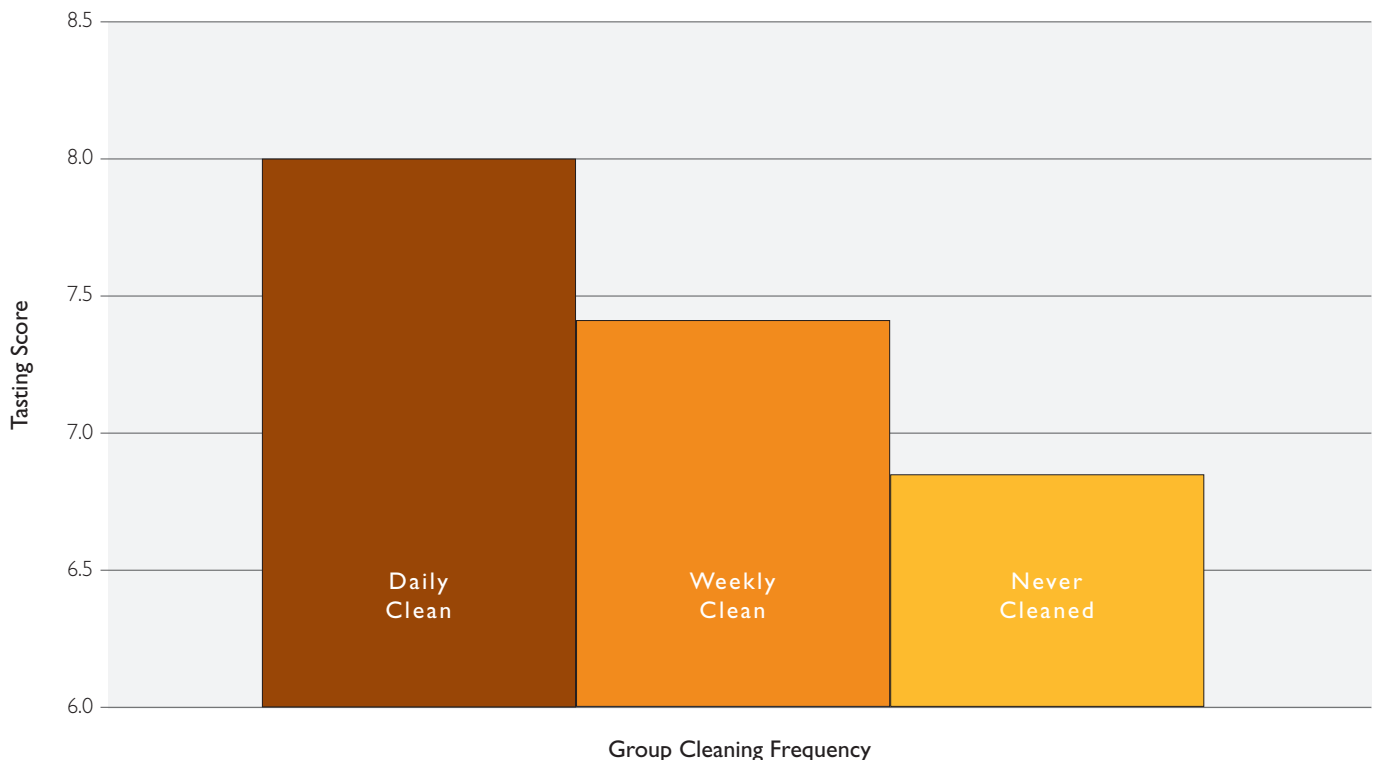
The scores and comments were:

Group	Cleaned	Score	Judges' Comments
Left	Daily	8.0	Sweeter, nice
Middle	Weekly	7.4	Thinner, good
Right	Never	6.8	Astringent, sticky, dirty

The result:

Clearly, the taste of espresso coffee is noticeably improved when extracted from a clean espresso machine.

Espresso Taste Scores by Brew Group Cleaning Frequency



Note: Contents of this article were featured in Café Culture, issue 16 2009.

Thanks to Michel's Espresso, Scott Callaghan, Emily Oak and Hazel De Los Reyes for their participation in this ground breaking trial.