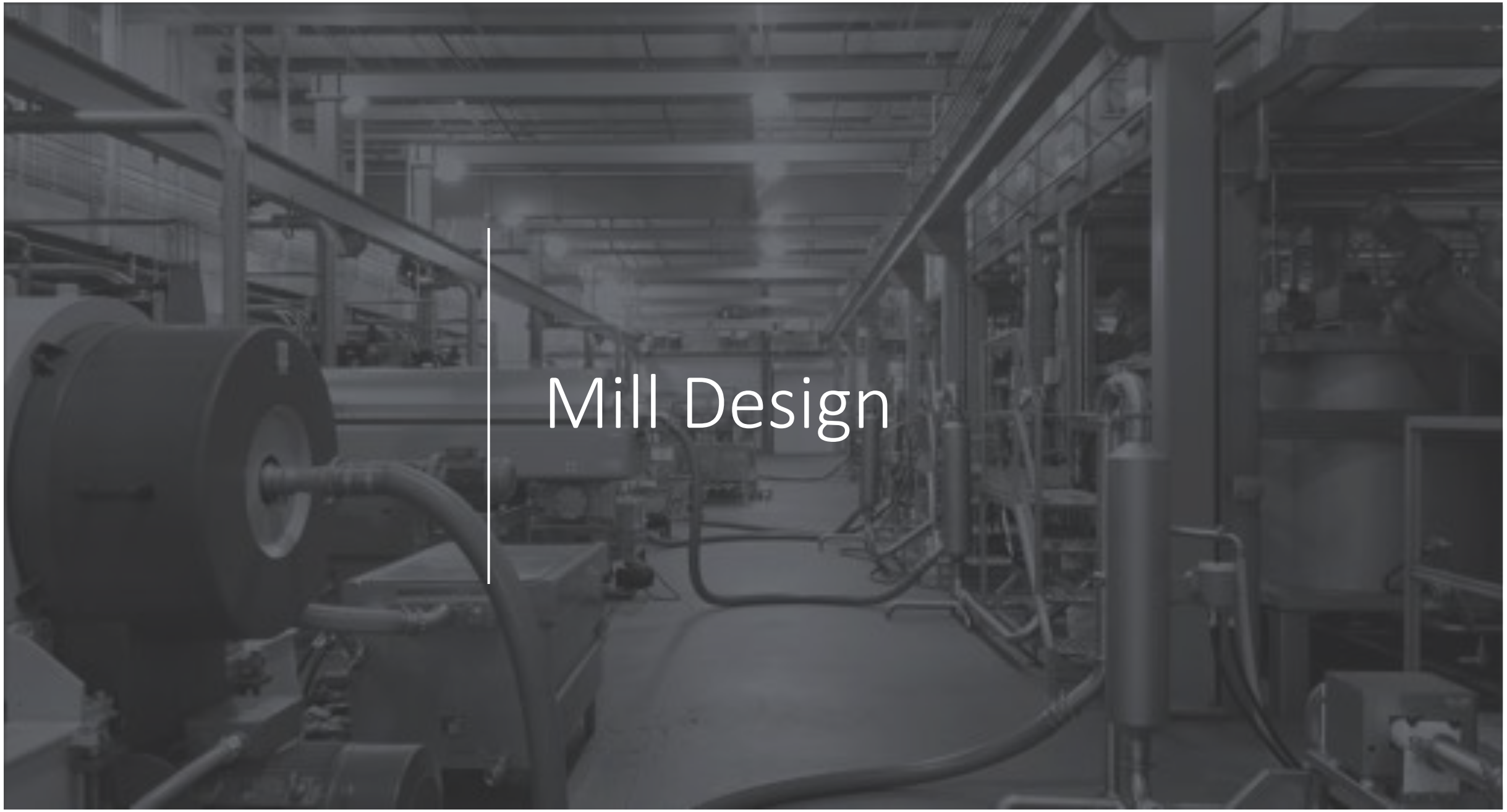
The Modern Mill

- David Garci-Aguirre
- Corto Olive Co.

- 2018 AOOPA Annual Meeting
- February, 24th 2018



Mill Design

Open Work Areas

Elevated Equipment


LINE
4


TALENT

Space For Servicing

Get the Electrical Out of the Way

Standardize

Redundancy


ClearFire'-H
ClearFire'-H

Milling

Objective: Extract ***As Much Oil*** of the ***Highest Quality*** Possible.

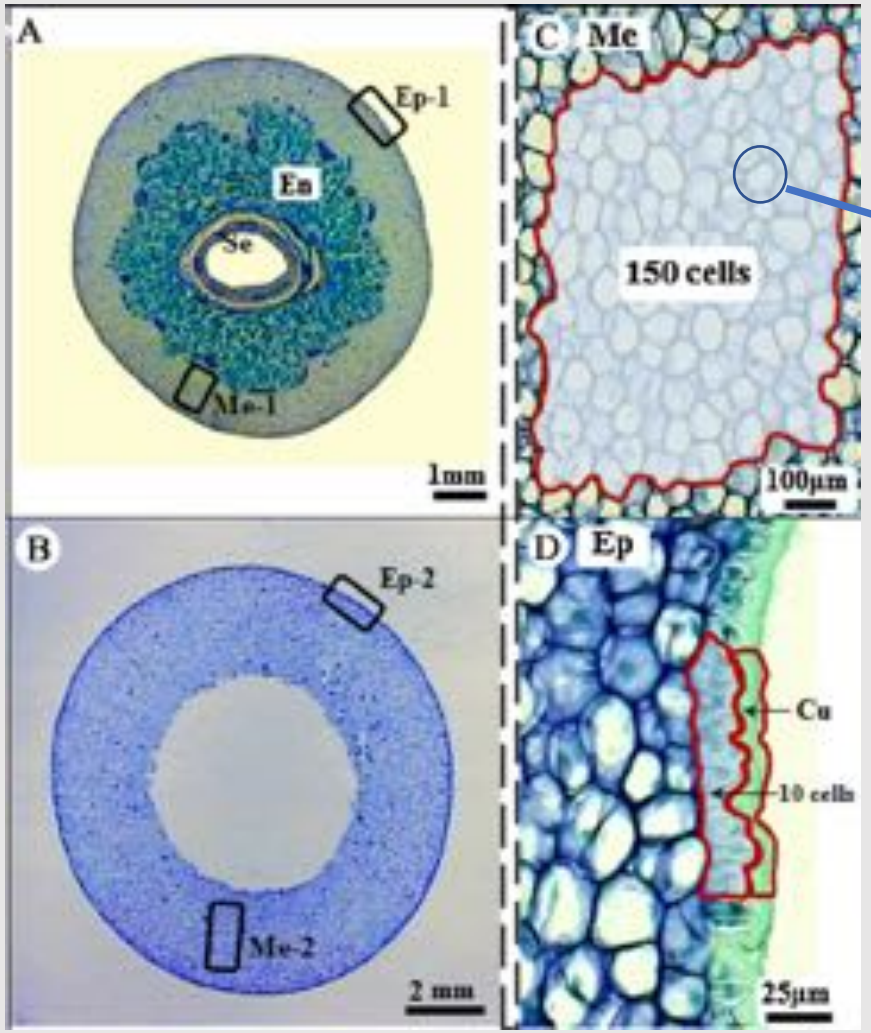
A few assumptions first…

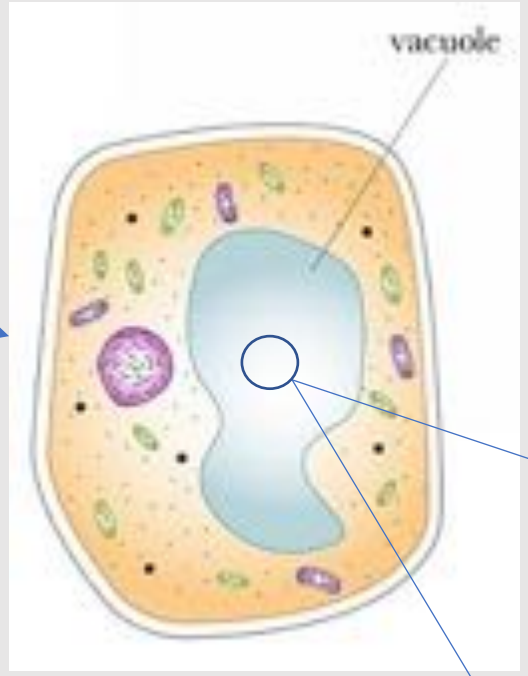
1. The Fruit is in excellent Condition on the tree.

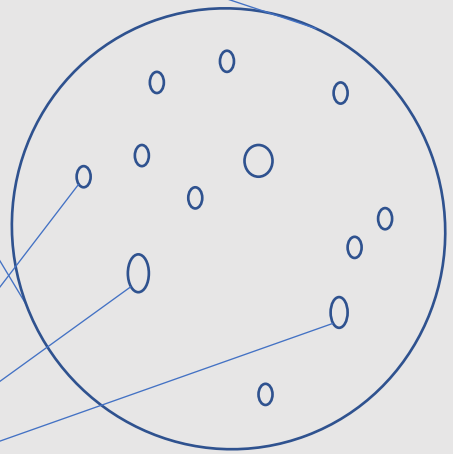
2. The Fruit is harvested at the right time in the right conditions.

3. The oil is extracted within hours of harvest.

Where is the Oil?







Microscopic droplets of Oil have no Color, Aroma, or Flavor

How it’s Extracted…

Variety of Fruit Conditions

Small/Large Fruit

Flesh To Pit Ratio

High/Low Moisture

High/Low Oil

Harvest Temperature

Location

Variety

Maturity

The Tools We Have

Small/Large Fruit

Crusher Grid, Agitator Speed

Flesh To Pit Ratio

Crusher Grid, Agitator Speed, Pump Speed

High/Low Moisture

Process Aids, Grid Size, Crusher Speed

High/Low Oil

Process Aids, Crusher Speed, Decanter Weir

Harvest Temperature

Malaxation Temp/ Time

Location

Process Aids, Malaxation Temp/ Time

Variety

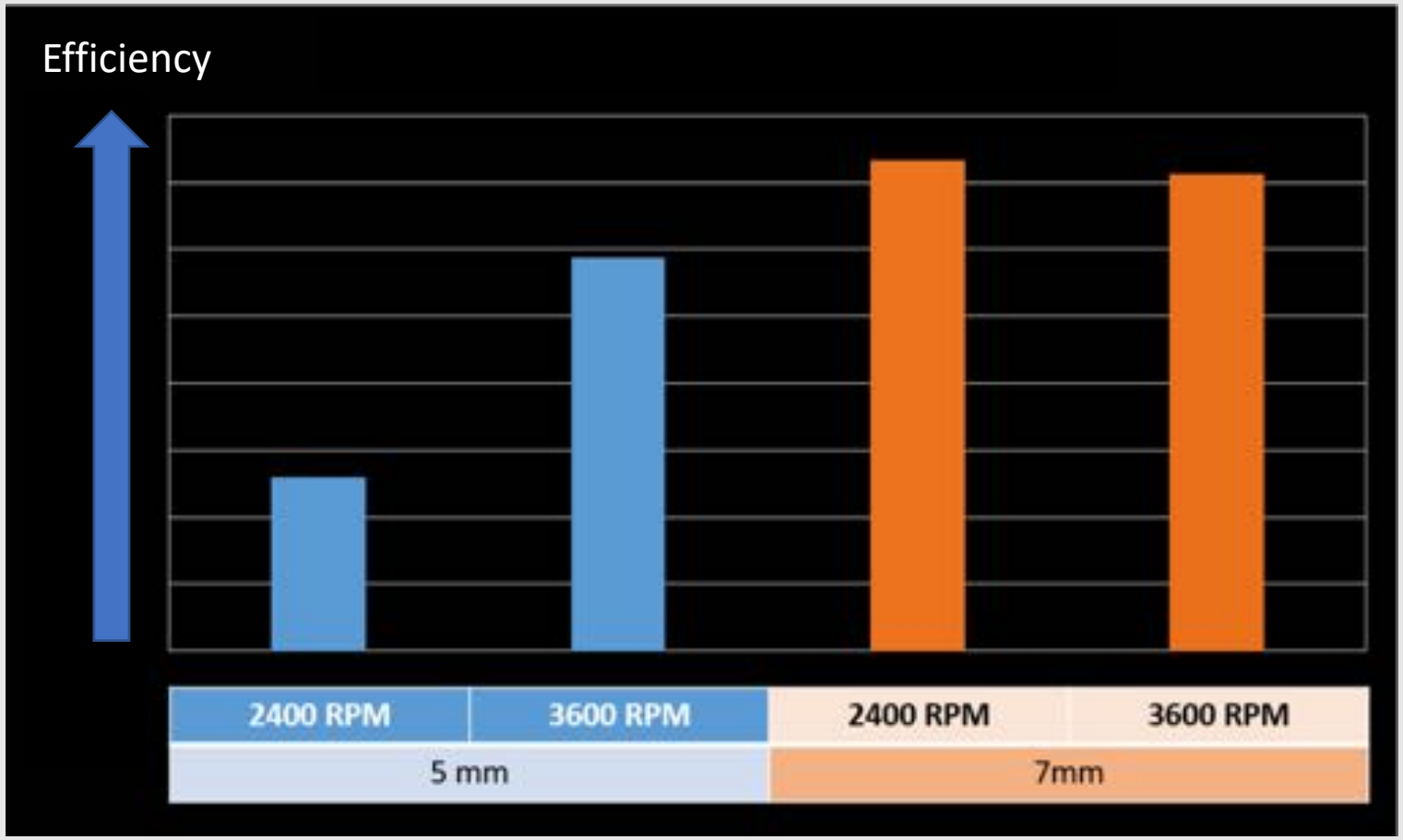
Process Aids, Malaxation Temp/ Time,

Maturity

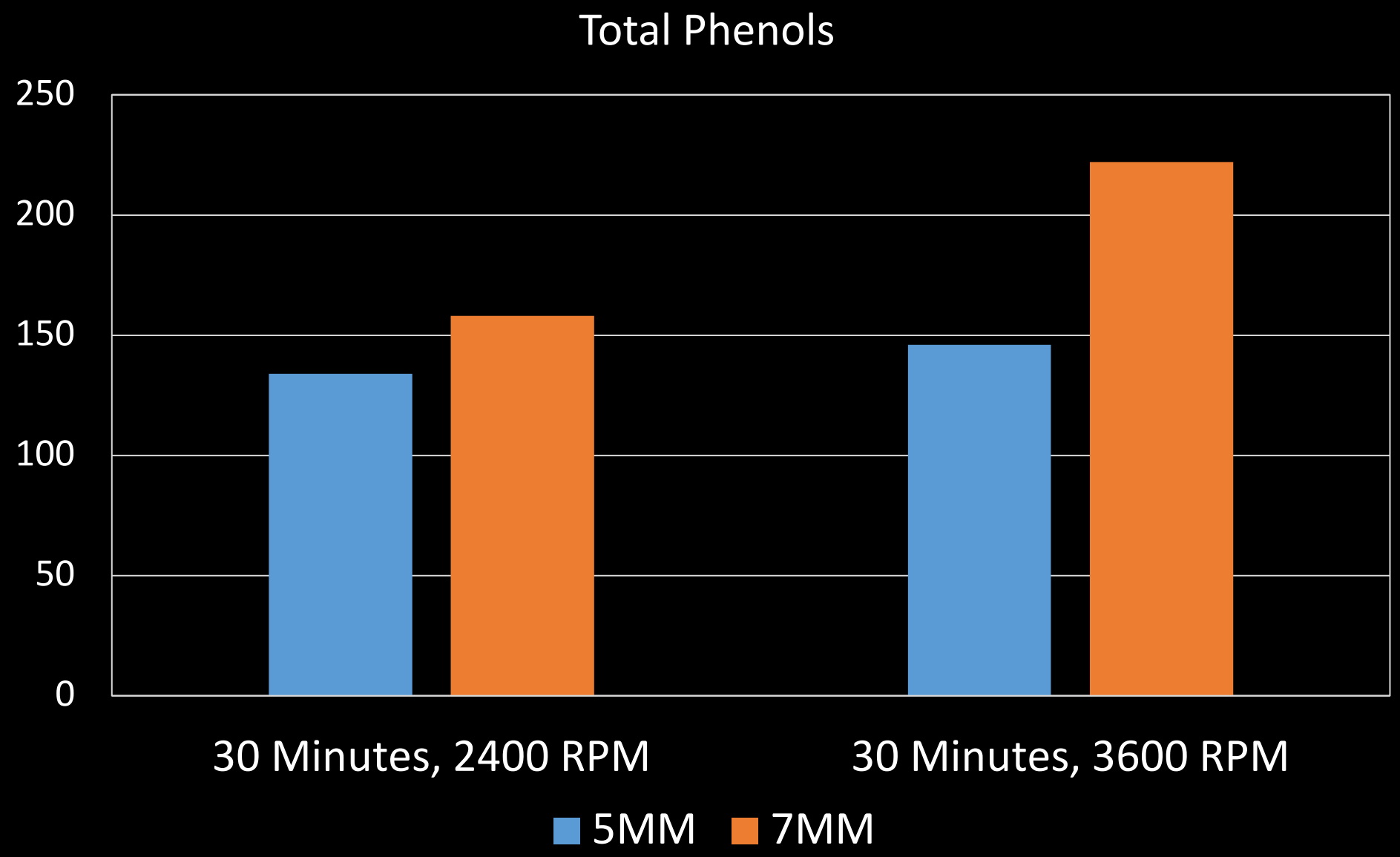
Process Aids, Grid Size, Crusher Speed

Measurable Results

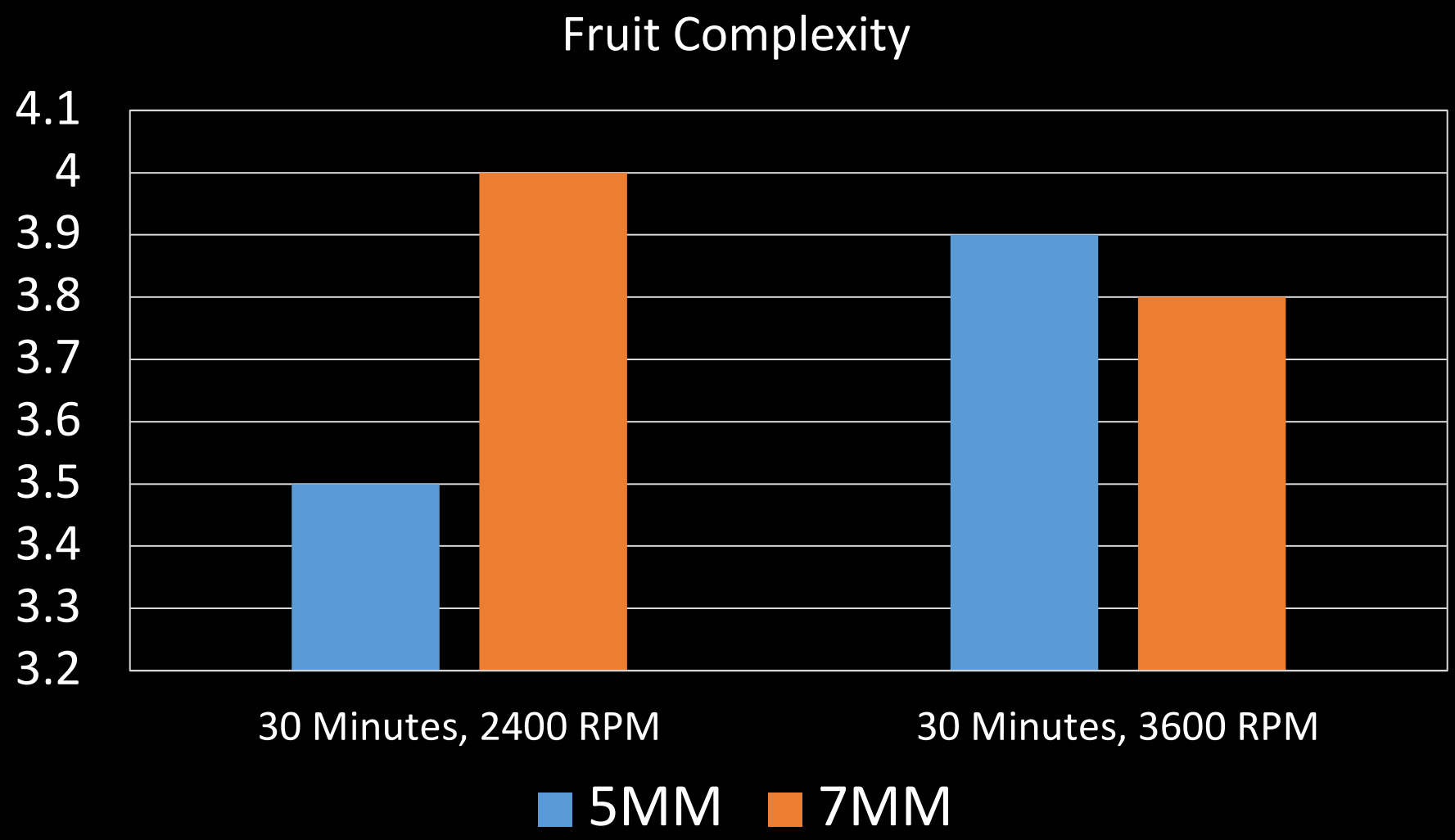
Fruit Condition: Arbequina, Delta Region, Average Fruit Size, 64% moisture, 21% oil



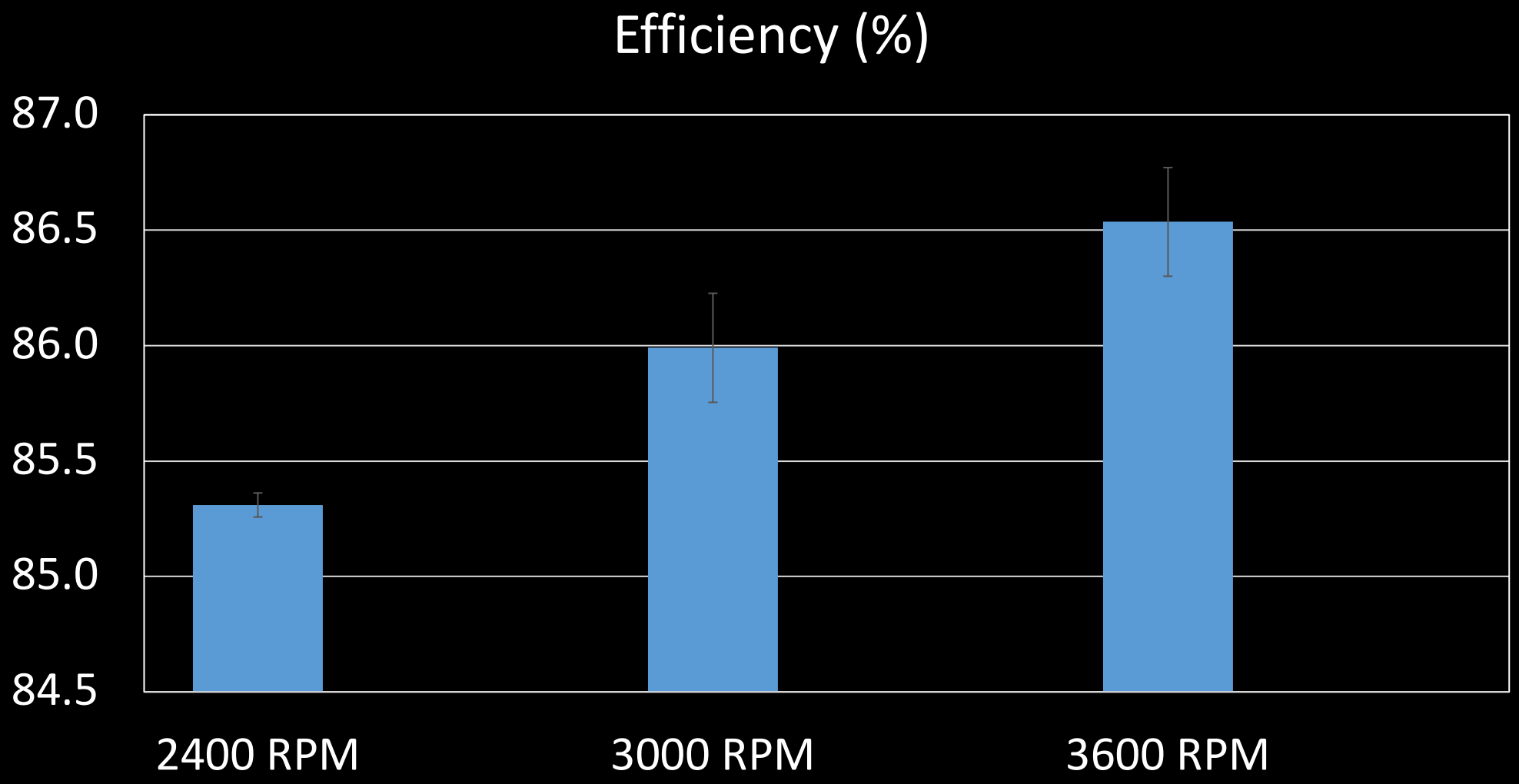
Impact of Milling



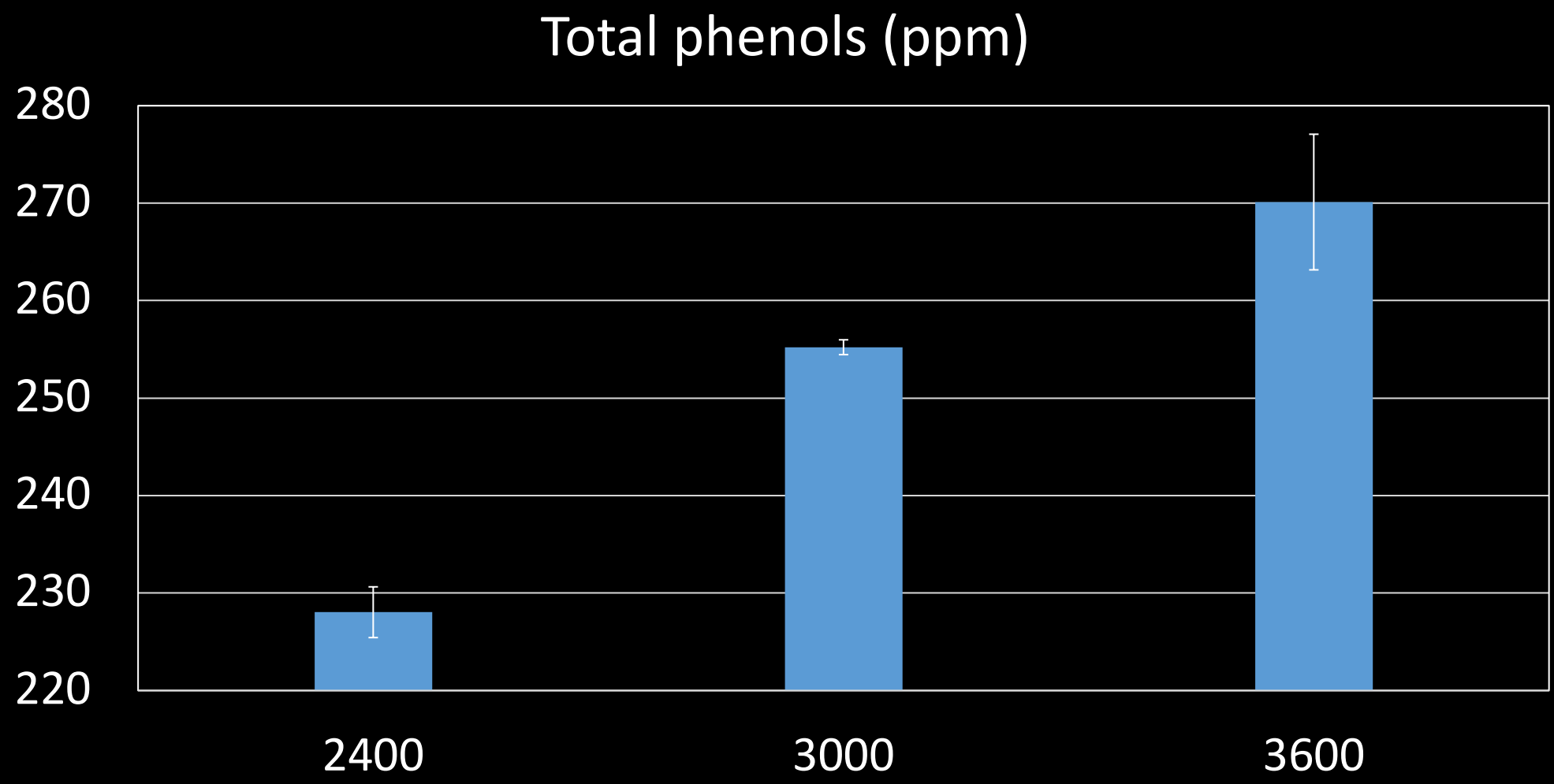
Impact of Milling



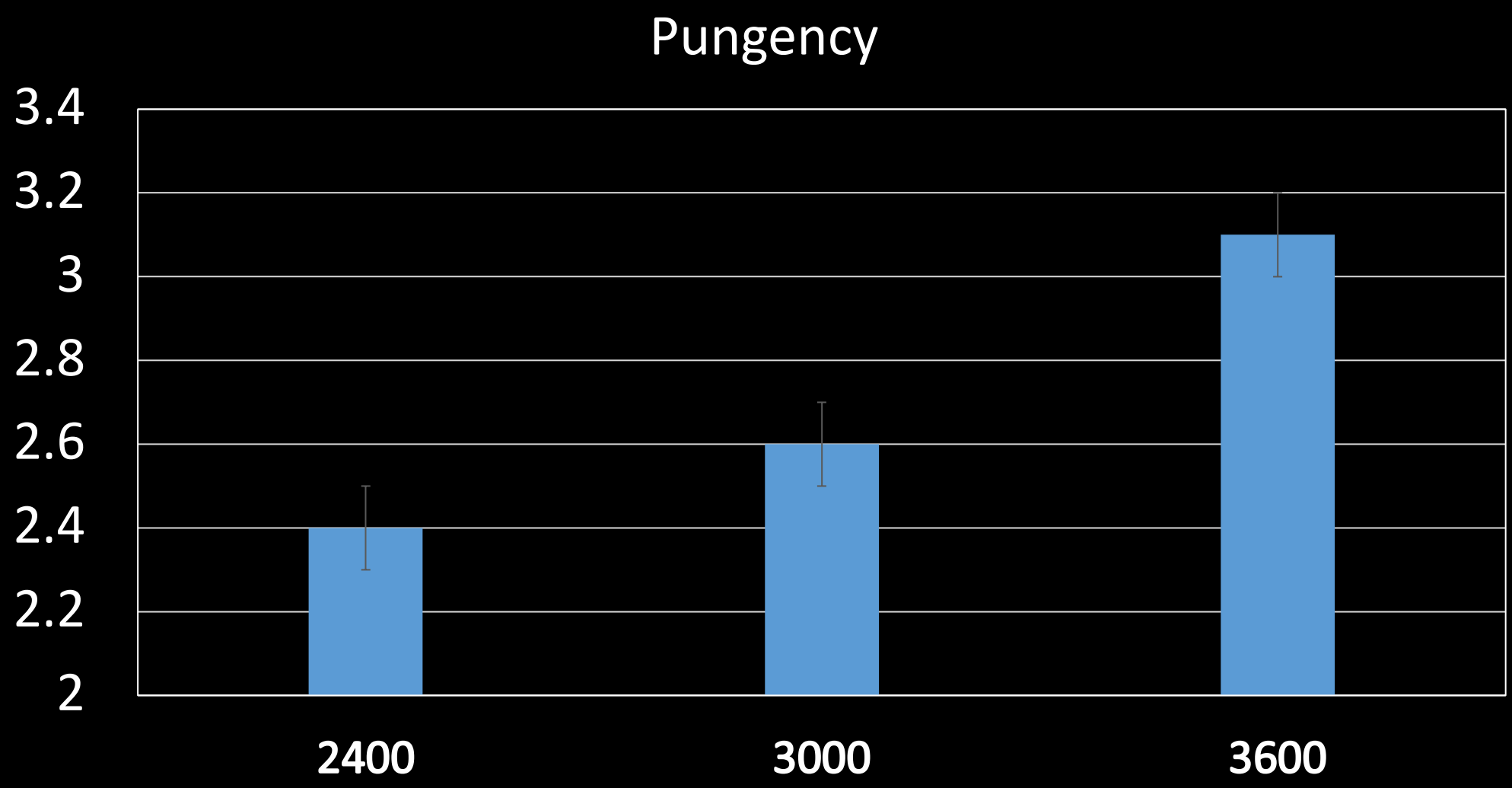
Impact of Milling



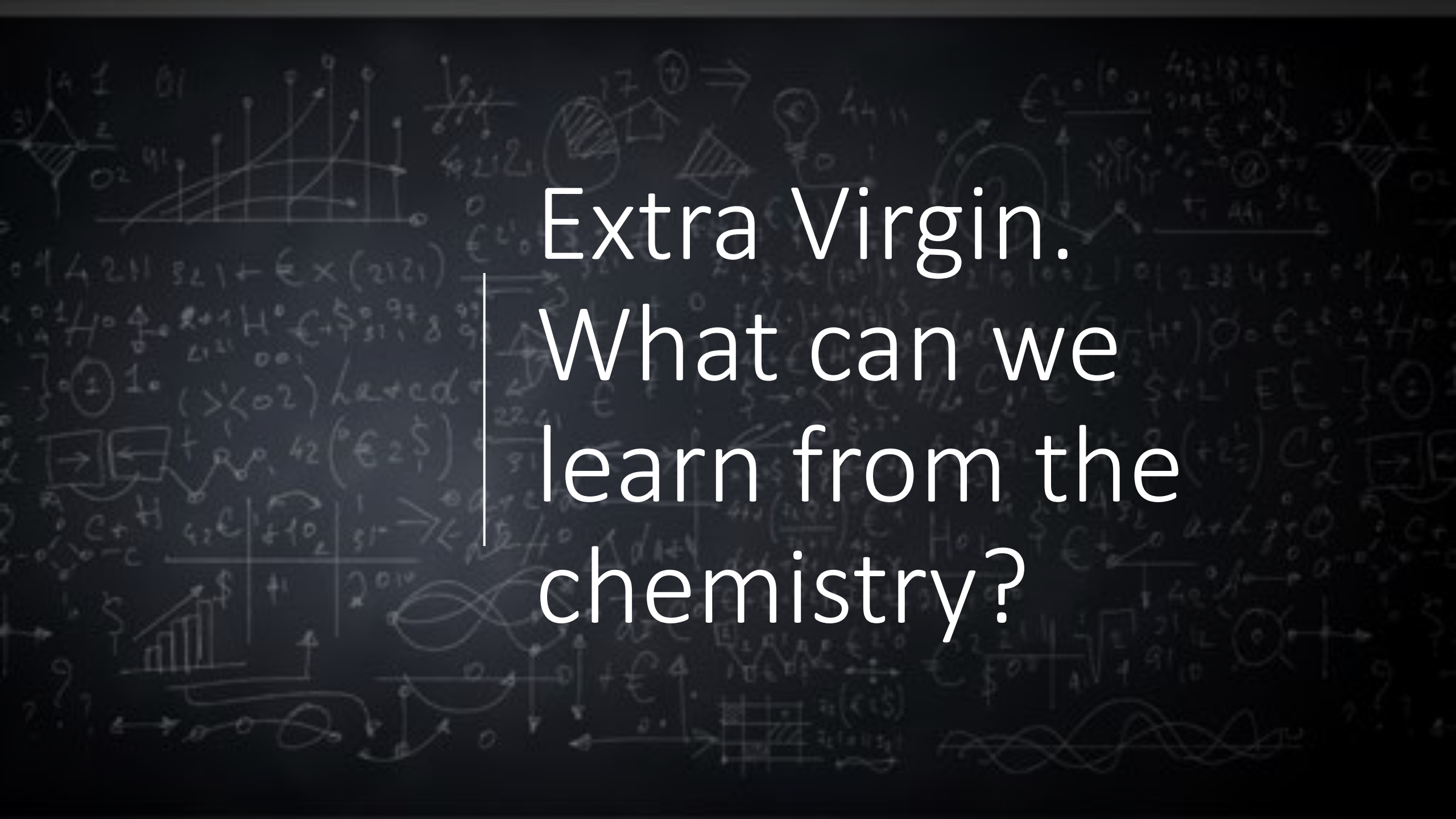
Impact of Milling

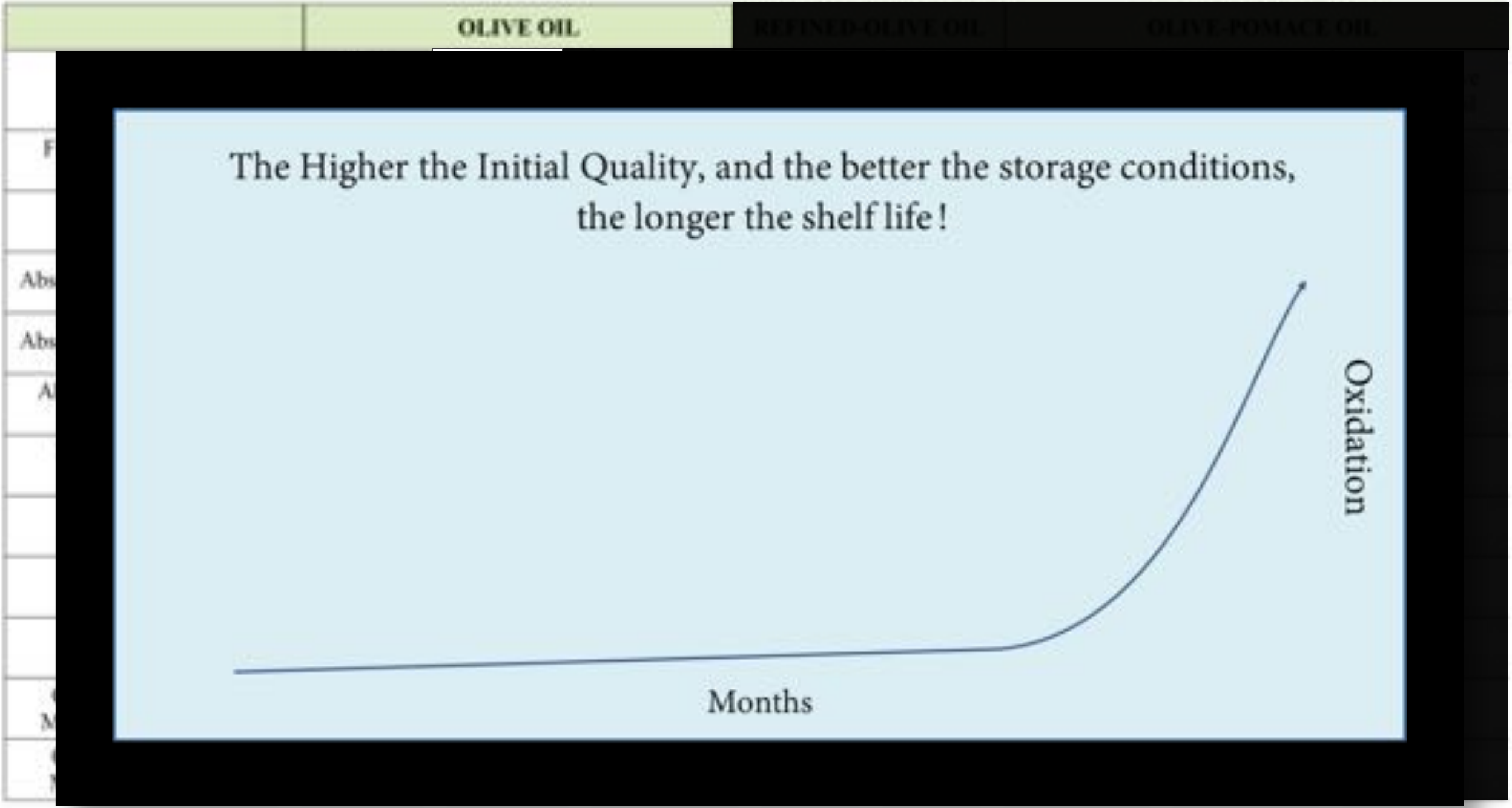


Impact of Milling



How we mill has a significant impact on the oil we make!


Extra Virgin.
What can we
learn from the
chemistry?


OLIVE OIL
The Higher the Initial Quality, and the better the storage conditions, the longer the shelf life!
Oxidation
Months

Millers should try to Prevent two things:

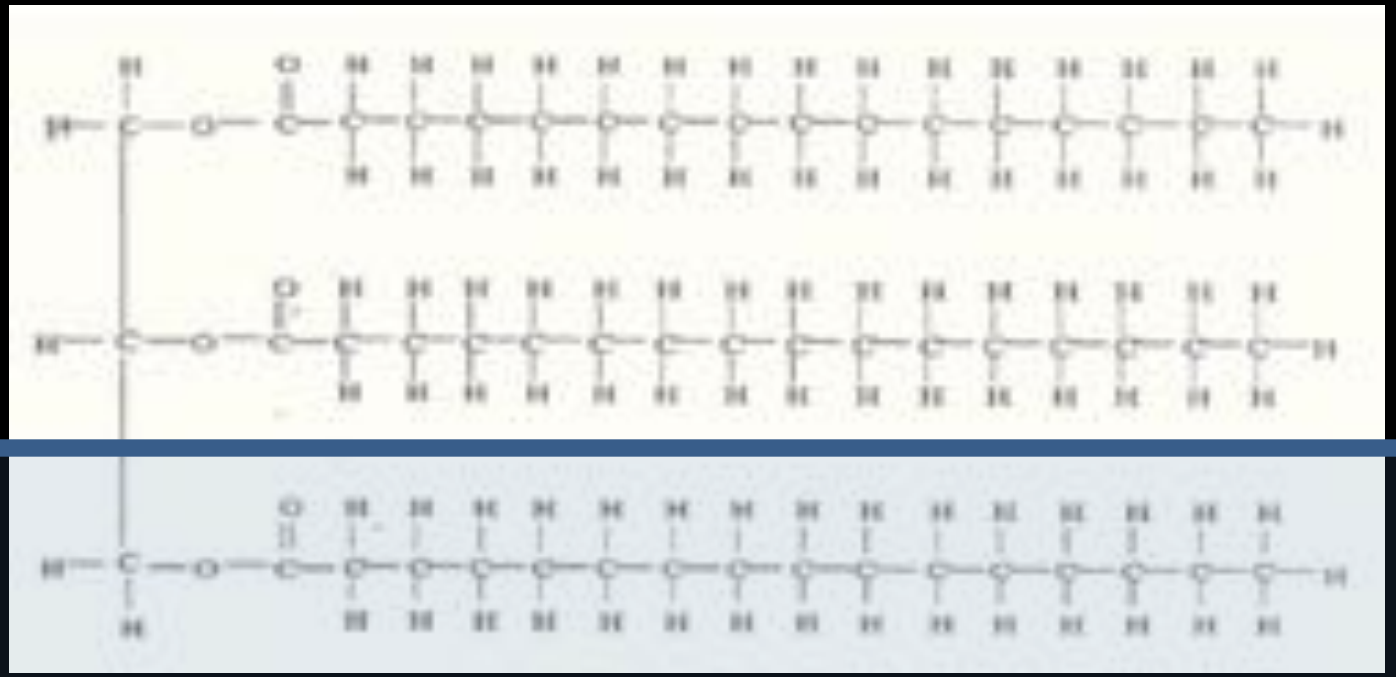
1. Fermentation of Olives
2. Oxidation of Olive Paste and Finished Oil

Fermentation

4 Hours

15 Hours

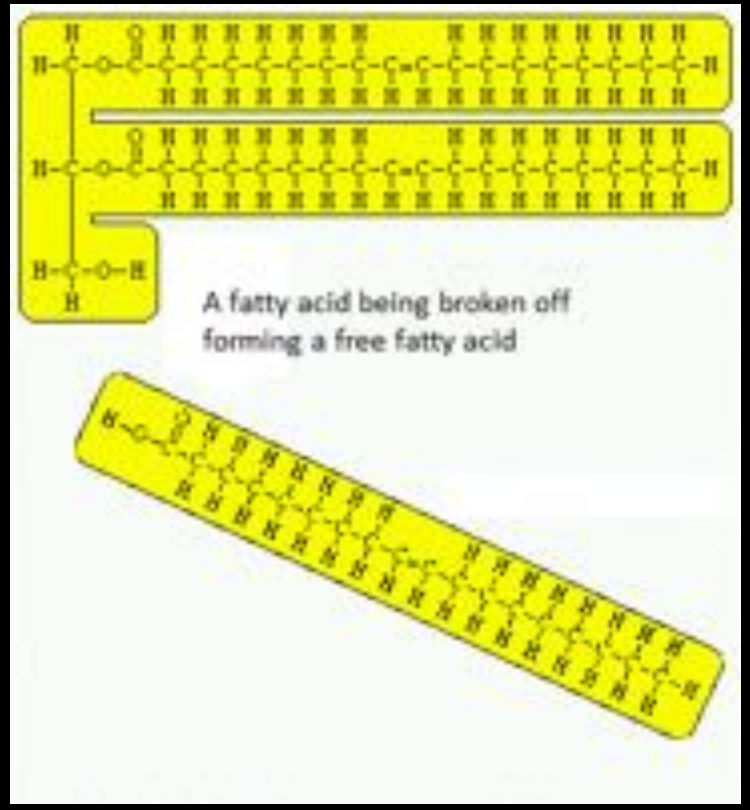
Olive Oil is made up of 3 fatty acids



Fatty Acid

Fermentation

Fermentations Cause Free Fatty Acids (FFA)



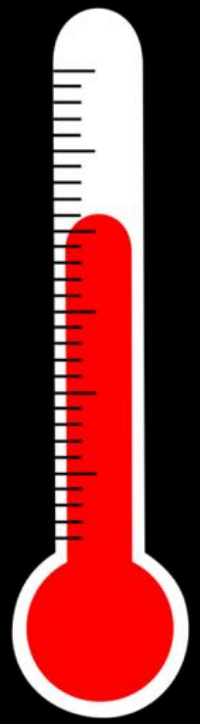
Fermentations Cause:

- ↑ FFA
- ↓ DAG's
- Heat
- Flavor Defects

Oxidation:

Oxidation is accelerated by:

4 things

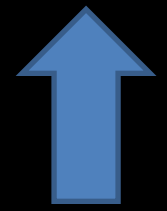


Oxidation Causes:

PV

K232

K270



PPP

Where can oxidation occur in milling?

	Malaxation Time	Malaxation Temperature
PV	⬆	⬆
K232	⬆	⬆
Delta K	⬆	⬆
DAGS	⬇	⬇

The Longer the Paste is Exposed to Oxygen and temperature, the more degradation occurs.

In Conclusion…

1. A properly Designed Mill will keep you focused on Milling (instead of putting out fires !)
2. A miller must be able to adjust to variations in Fruit Conditions.
3. Milling has a significant impact on the flavor, the quality, and the amount of oil extracted.
4. Fresh oils MUST be held to higher standards in order to meet Extra Virgin standards later on.


Thank You !