

AN INTRODUCTION TO LOW ABV &  
NON-ALCOHOLIC CIDER PRODUCTION

Cidercon 2024 PDX

1.18.24

# INTRODUCTIONS

- David Takush – 2 Towns Ciderhouse - Corvallis, Oregon
- Ellen Cavalli – Tilted Shed Cidery - Windsor, California
- Christine Bauman – Bauman's Cider - Gervais, Oregon
- Scott Katsma – Seattle Cider - Seattle, Washington
- Vince Polino – Alfal Laval Inc.

# LOW ABV PRODUCTION METHODS

- Removing sugar (via cryo-concentration)
  - Using the leftover low-sugar juice after ice-cider production
- Adding water pre or post fermentation
  - Dilution of sugars (and acids)
- Partial removal of alcohol
  - Vacuum distillation or reverse osmosis (RO)
- Ciderkin
  - Adding water and sugar (optional) to pomace

# NO ABV PRODUCTION METHODS

- Distillation
  - Vacuum distillation 'spinning cone' & low temp/element technology
- Reverse Osmosis (RO) filtration
  - Make not be practical/applicable
- Microbial
  - Fermentation without alcohol production by novel yeast/bacterial strains

## <0.5% ABV REGULATORY CONSIDERATIONS

- Products less than 0.5% ABV are FDA regulated non-alcoholic beverages
- Products less than 0.05% ABV are considered 'alcohol free'
  - Be cautious and intentional about your statements regarding alcohol content
- Non-fermented NA juice ingredients *must* be processed under HACCP
  - Purchased or produced. Be cognizant of your blend backs.
- Sparkling juice beverages need Food Safety Plans written by a PCQI individual
- Must be pasteurized accordingly as a non-alcoholic beverage
  - Identify your Critical Control Points!

# Dealcoholization for Cider

– Production of LoNo alcohol beverages with Vacuum Stripping



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# Why fermented beverages without alcohol?

Reasons



10,000 Millions \$ in expected market value by 2027.

Consumption growth of 19.8% in 2022 (LoNo beverages).

Healthy lifestyle and safety in driving.

New market niche. Drinks for Millennials.



# Dealcoholization (3 applications in 1 unit)

Applications



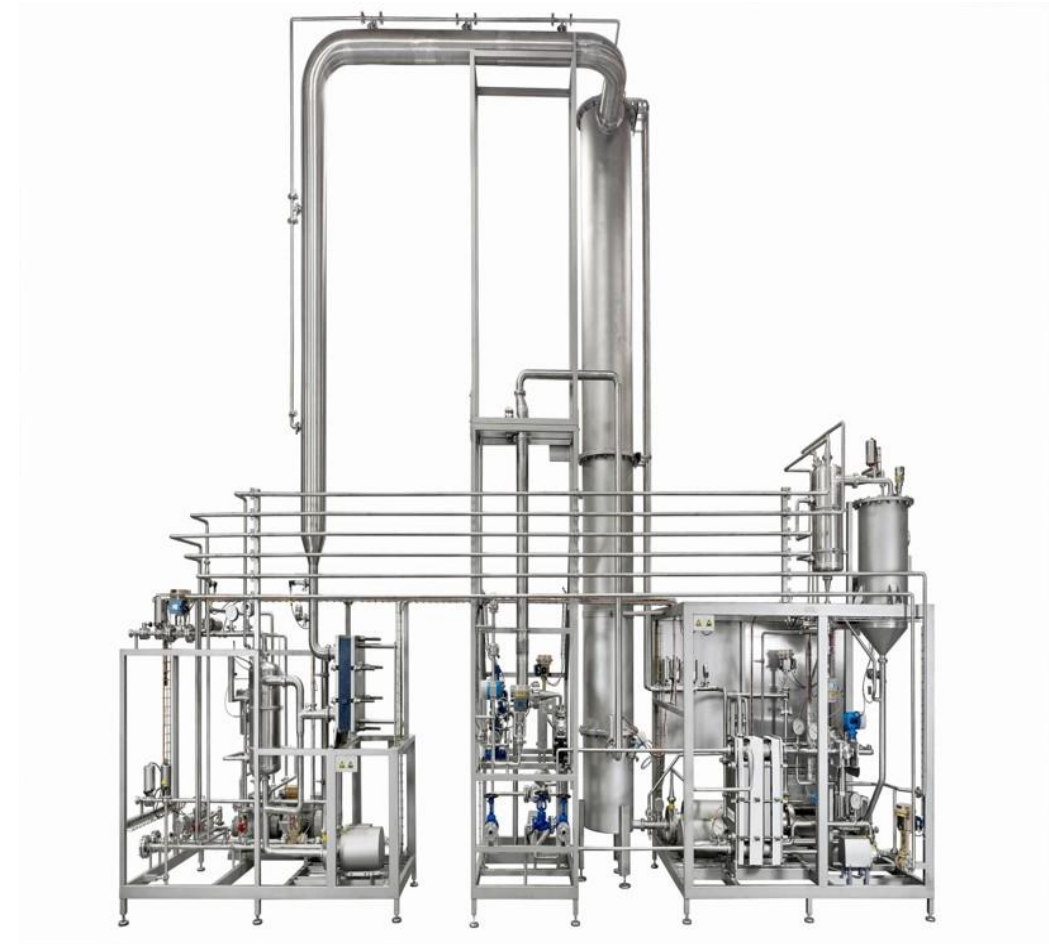
## **Partial Dealcoholization:**

From 5 to 2.5 % ABV or From 6% to 1.5 % ABV.

## **Total Dealcoholization:**

Cider non-alcoholic <0.5% ABV or 0.0 cider  
< 0.05% ABV

**Separation of food grade alcohol** to be used in  
another drinks.



# Aroma recovery

Remove ethanol without losing aromas



**Remove ethanol** without losing aromatic profile.

**Volatiles recovery** ( ésters, fatty acids, superior alcohols and terpenes)

**Soft process for cider**



# Vacuum Stripping main process features



**Pure soft vacuum stripping of ethanol**

**Low thermal impact  $T < 45^{\circ}\text{C}$**

**Proven CIP/SIP in SS internal surfaces.**

**Efficient process**

**Low maintenance costs**



# 5 steps

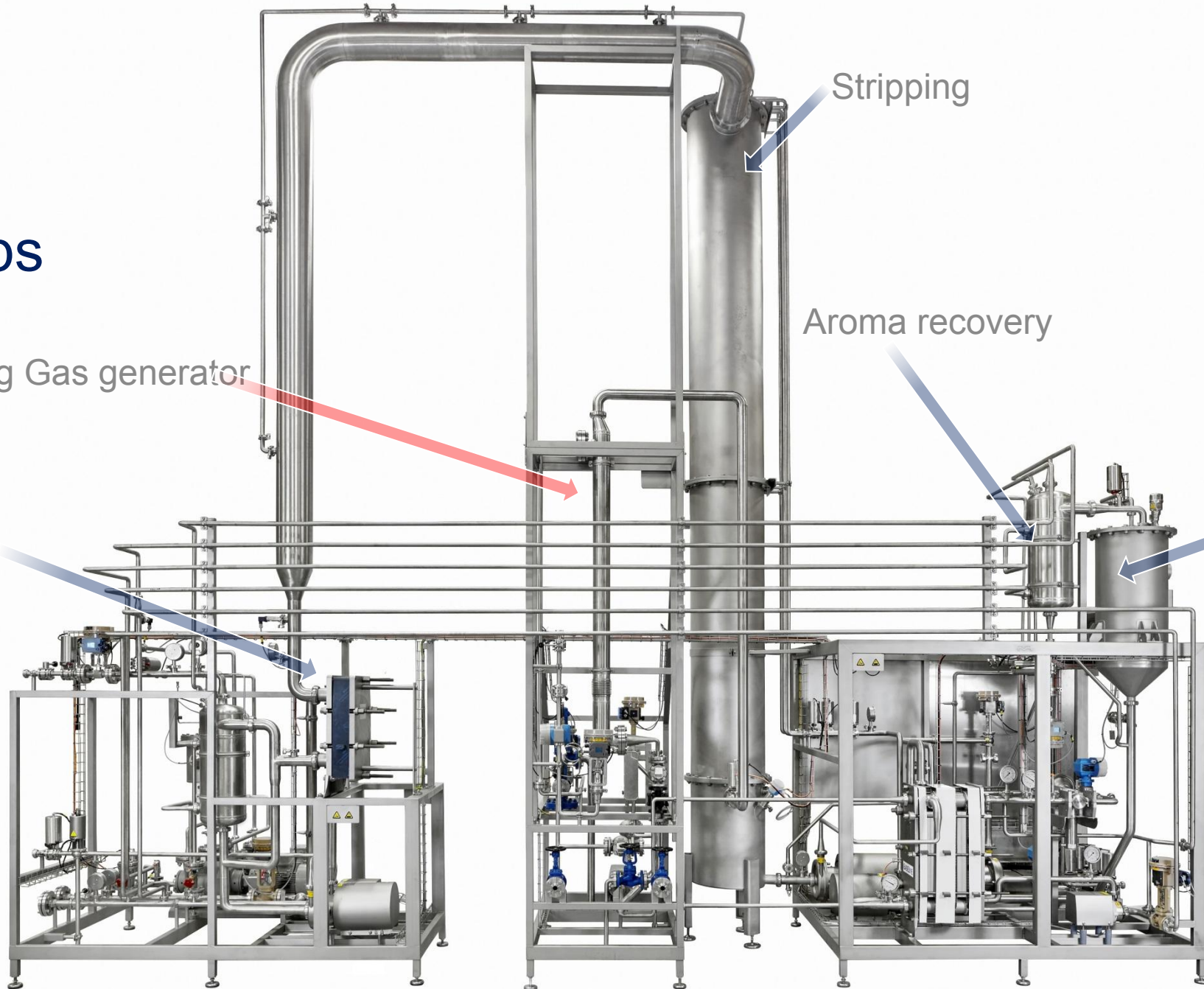
Stripping Gas generator

Stripping

Aroma recovery

Gas Condenser

De-gassing



# Great success NoLo products in the world



Mjærn • Levevandsløse  
**Levevandsløse • Sortbær**  
**Royal Unibrew seksdobler salget af alkoholfri øl**  
 Lanceringen af en ny alkoholfri øl har boostet bryggerikoncernens salg i Danmark i denne måned  
Af Søren Tougaard - 26. marts, 2020

Foto: Royal Unibrew  
 Salget af alkoholfri øl boomer i Danmark. Den tendens mærker man også hos Royal Unibrew, der i de første tre uger af marts har solgt seks gange mere alkoholfri øl på det danske marked end samme periode sidste år.



# Alfa Laval De-alc reference list 2022



ABInBev HQ Leuven, Belgium De-alc 100 hl/h  
Asahi CUB Yatala, Australia (former ABI Aus) De-alc 100 hl/h  
Asahi Brewery- Fukushima-Japan De-alc 100 hl/h  
Asahi Brewery- Suita – Japan De-alc 100 hl/h  
Asahi Brewery- Peroni- Italy De-alc 100 hl/h  
Asahi Brewery- Pilsner-Urquell-Czech Rep. De-alc 100 hl/h  
Faxe Brewery, Denmark De-alc 50 hl/h  
Waterloo Brewery, Canada De-alc 50 hl/h  
Carlsberg Finland, Sinebrychoff De-alc 25 hl/h  
Arasan Brewery, Kazashtan De-alc 20 hl/h  
Drynks UK De-alc 20 hl/h  
Glubczyce Brewery-Poland De-alc 20 hl/h  
Colonial Brewery-Australia De-alc 20 hl/h  
Asahi Brewery- Ibaraki-Japan De-alc 10 hl/h  
Grans Brewery, Norway De-alc 10 hl/h  
Farsons Malta De-alc 10 hl/h  
ABInBev experimental brewery, Belgium De-alc 5 pilot hl/h  
Font Salem-Valencia-Spain 2 x SCC column (40 hl/h 0.0 beer)  
Superbock- Porto- Portugal 1 x SCC column (20 hl/h 0.0 beer)  
Rothaus Germany 2 x SCC column (20 hl/h 0.5 beer)

# One last benefit!

- Thank you!



0.0 %  
ABV

# TASTINGS & CIDER MAKER PROCESSES

- Scott Katsma – Seattle Cider
- Christine Bauman – Bauman's Cider
- Ellen Cavalli – Tilted Shed Cidery
- David Takush – 2 Towns Ciderhouse