A PRACTICAL GUIDE TO USING HOP OILS
A VIRTUAL "HOW TO" GUIDE

HOP OILS ARE GROWING IN POPULARITY AS DOWNSTREAM PRODUCTS BECOME MORE WIDELY ACCEPTED. HOWEVER, AS USAGE OF THESE CONCENTRATES DEVOID OF BIOMASS INCREASES, SHARING EXPERIENCES ON USAGE IS INCREASINGLY IMPORTANT.

BA COLLAB HOUR. NOVEMBER 17, 2021
MAIN SPEAKER TODAY

- TODD MALO, COO GLACIER HOPS RANCH
  - 14 YEARS COMMERCIAL BREWER
  - CHEMISTRY BACKGROUND
  - FORMER CEO HERBAL EXTRACT SUPPLEMENT COMPANY
QUESTIONS? PLEASE!

• USE CHAT FUNCTION TO ASK QUESTIONS AT ANY TIME THAT YOU THINK OF THEM
• THIS IS AN OPEN FORMAT, AND OPERATIONAL QUESTIONS ARE WELCOME!
FORMATS OF HOP OIL

• CO2 SUPER CRITICAL EXTRACTION
• WATER & ETHANOL EXTRACTION
• STEAM DISTILLATION
  • DOESN'T WORK WITH PELLETS OR WHOLE CONE...BEST WITH FRESH, WET HOPS
  • PURE OIL...WE DON'T RECOMMEND IT FOR BEER...GO WATER SOLUBLE
  • WATER-SOLUBLE OIL FORMATS...THE WAY TO GO
    • NO PG OR ETHANOL, ONLY NATURALLY-DERIVED EMULSIFIERS
COMMON APPLICATIONS AND VARIATIONS

- IPA'S...ANY
  - HAZY IPA'S
  - JUICY IPA'S
  - NEW ENGLAND IPA'S
  - DOUBLE IPA'S
  - IPL'S
  - NA IPA'S
- REALLY, ANY BEER!
- HOPPED SELTZERS
- OTHER BEVERAGES
WHAT IS THE PAYOFF OF GETTING IT RIGHT?

• LONGER SHELF LIFE OF HOP-FORWARD BEERS
• INCREASED THE AROMA/FLAVOR OF ANY BEER
• HAPPIER CUSTOMERS
• MORE REVENUE PER BATCH – PROFITABILITY
• GREATER SALES
THE MOST COMMON CHALLENGES

• MATCHING THE PROFILE OF A PRODUCTION BEER
• CREATING A PROFILE FOR NEW BEER
• ADJUSTING RECIPES
• DOSAGE RATES
• WHEN TO DOSE
• DOSAGE METHODS
COMMON OBSERVATIONS & MISTAKES

• THE HOPZOIL PRODUCT:
  • ASSUMING…
  • MAJIK/HAZY MIXED WITH ETHANOL…
  • ASSUMING THAT HOPZOIL REACTS THE SAME WAY AS PELLETS
  • HOPZOIL NEEDS FREEZING OR REFRIGERATION…

• APPLICATION OF THE HOPZOIL PRODUCT:
  • DOSED IN FERMENTATION…
    • IS IT OKAY TO DOSE BEFORE CRASH
COMMON OBSERVATIONS & MISTAKES (CONTINUED)

- APPLICATION OF THE HOPZOIL PRODUCT - CONTINUED:
  - DOSING IN WHIRLPOOL
  - NOT AGITATING OR HOMOGENOUSLY MIXING THE PRODUCT
  - DOSING PARTIALLY CARBED BEER
  - SENSORY MISTAKES…
    - UNDERESTIMATING ITS POTENCY
    - OVERESTIMATING ITS POTENCY
- ALLOW ABOUT 24 HOURS BEFORE PACKAGING
THE LEARNING PROCESS...

• THE PRODUCT IS STILL FAIRLY NEW – WE ARE STILL LEARNING

• DETERMINE WHAT THE END GOAL IS OF YOUR BEVERAGE
  • IS IT A SPECIFIC HOP OR THE SPECIFIC CHARACTERISTICS OF THE HOP I.E. FLAVOR/AROMA

• START SMALL, FAIL SMALL
  • LEARN AND BECOME PROFICIENT

• EASY TO SCALE – ALMOST LINEAR

• GO TO FULL PRODUCTION BEERS AFTER COMFORT LEVEL ATTAINED
FLAVOR MATCHING

• FOCUS LESS ON VARIETY, MORE ON SENSORY MATCHING
  • AROMA
  • FLAVOR
  • MOUTH FEEL

• HOP OILS ARE NOT ALWAYS A PERFECT MATCH TO PELLETS
  • HOPZOIL IS MADE FROM FRESH/WET HOPS, NOT DRIED. FLAVORS ARE MORE INTENSE
  • REQUIRES SOME R&D BENCH TESTING WITH RECIPES
  • START WITH PINT/QUART DOSING FOR FLAVOR PARAMETERS...BENCH TEST
  • ADJUST DOSING BASED ON OUR GUIDELINES
    • A DIFFERENCE BETWEEN PARTIAL AND FULL REPLACEMENT
DON’T DO THIS

• THE HOPZOIL PRODUCT:
  • DO NOT ADD ETHANOL TO WATER-SOLUBLE FORMATS
  • DO NOT JUST POUR IT INTO THE SOLUTION – IT MUST BE MIXED HOMOGENOUSLY
  • DO NOT FREEZE HOPZOIL IN ANY FORMAT – STORE AT ROOM TEMP, OUT OF LIGHT, UNDER N2 OR CO2
  • DO NOT REFRIGERATE HOPZOIL IN ANY FORMAT – STORE AS STATED ABOVE
DON’T DO THIS (CONTINUED)

• APPLICATION OF THE HOPZOIL PRODUCT:
  • DO NOT ADD AFTER CARBONATION
  • DO NOT ADD BEFORE PULLING TRUB
  • DO NOT JUST POUR INTO FERMENTER OR BRITE
  • DO NOT ADD ON HOT SIDE…COLD SIDE ONLY!
## COSTING ANALYSIS

Enter your actual data

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<thead>
<tr>
<th></th>
<th>Example #1</th>
<th>Example #2</th>
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</thead>
<tbody>
<tr>
<td><strong>Per Batch / BOTTLES/CANS FORMULA</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Batch Size (BBLs)</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>Dry Hopping Rate / lbs per BBL</td>
<td>1.72</td>
<td>2</td>
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<tr>
<td>Dry hop pellets used (pounds)</td>
<td>26</td>
<td>60</td>
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<tr>
<td>Hop Pellet Cost/Lb (varies by variety)</td>
<td>$16.00</td>
<td>$15.00</td>
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<tr>
<td>Dry Hopping Pellet Cost total</td>
<td>$412.80</td>
<td>$900.00</td>
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<tr>
<td>Freight (avg. UPS cost/lb)*</td>
<td>+ $0.68</td>
<td>+ $0.50</td>
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<tr>
<td><strong>Estimated Freight Cost</strong></td>
<td>$17.54</td>
<td>$30.00</td>
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<tr>
<td><strong>Dry Hop Pellets/Hard Input Costs</strong></td>
<td>$430.34</td>
<td>$930.00</td>
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### Net Difference Using Hopzoil

<table>
<thead>
<tr>
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<th>Example #1</th>
<th>Example #2</th>
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</thead>
<tbody>
<tr>
<td>Total Dry Hop Pellets / Hard Input Costs</td>
<td>$430.34</td>
<td>$1,058.40</td>
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<tr>
<td>Soft Costs/Increase in SHELF LIFE</td>
<td>Variable</td>
<td>Variable</td>
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<tr>
<td>Savings - % Reduction in Dry Hop Pellets</td>
<td>$284.03</td>
<td>$1,058.40</td>
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<tr>
<td>Hopzoil Input Costs/Batch</td>
<td>$188.48</td>
<td>$679.35</td>
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<tr>
<td>Net Gain/Taproom Sales</td>
<td>$1,532.50</td>
<td>$6,075.00</td>
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<tr>
<td><strong>Net Difference / PER BATCH</strong></td>
<td>$1,628.07</td>
<td>$6,454.05</td>
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</tbody>
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Calculate your increased revenue per batch.
EXAMPLE OF LEARNING TO USE HOPZOIL

Bill Cherry
Founder, Brewmaster, President
SUMMARY

• USING HOP OILS TAKES SOME GETTING USED TO...IT’S NOT PELLETS

• NEW WATER-SOLUBLE FORMATS ARE HUGE GAME-CHANGERS
  • EASE OF USE, CONSISTENT RESULTS

• BUT THE PAYOFF IS WORTH IT:
  • GREAT FLAVOR
    • INTENSE, HOPPY AROMA WITHOUT YIELD LOSSES, HOP CREEP, HOP BURN, ETC.
  • ECONOMIC:
    • INCREASED SALES / POPULAR BEERS
    • INCREASED REVENUE PER BATCH
    • INCREASED MARKET SHARES
QUESTIONS? THE FLOOR IS NOW OPEN

• PLEASE USE CHAT SECTION