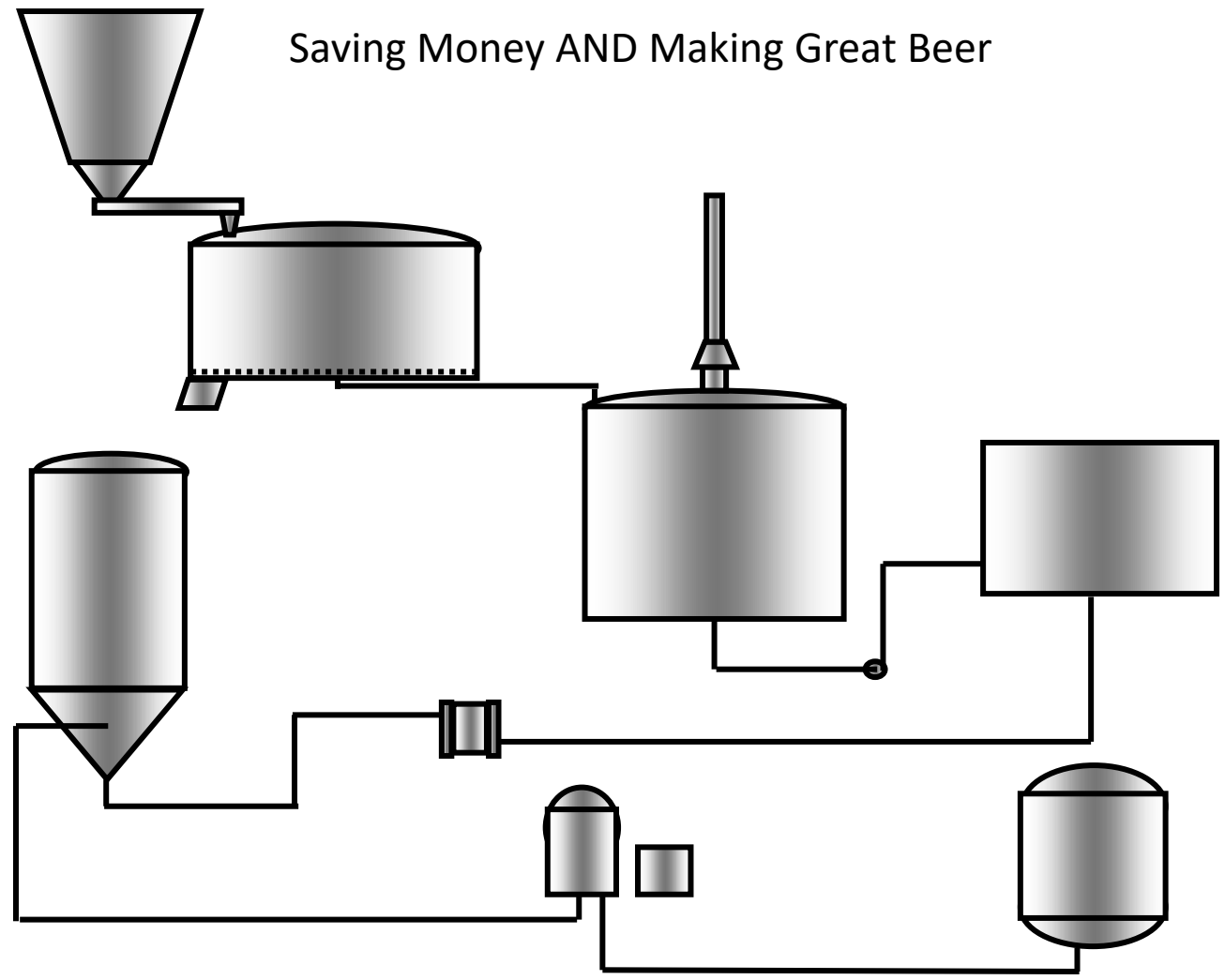




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# Saving Money AND Making Great Beer



# Why Save Money?

Percentage increase since 2020

• Cans	12.5%
• Cardboard packaging	30%
• Labels	15%
• Transport	20%
• CO <sub>2</sub>	100%

# Why Save Money ?

• Malt	100%
• Specialty Malt	25%
• Hops	25%
• Cleaning chemicals	25%
• Labor (hourly & salary)	10%
• Health Coverage	22%
• Sales Expenses	15%
• State beer tax/sales tax 2024	?

# How to Save Money

- Increase prices
- Reduce costs
- Reduce losses



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# Increase Prices

A highly competitive market exists. Consumers are experiencing diminished disposable income



BREWING SCHOOL



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# Reduce Costs

- Reduce staff
- Cut benefits
- Cheaper ingredients
- Cheaper packaging materials
- Reformulate beers
- Don't maintain equipment





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# Reduce Losses

- Produce more beer from the same raw materials
- Use less raw materials to make the same beer



# Where the Losses Occur

- Packaging or Dispense (Brewpubs)
- Fermentation
- Filtration
- Brewhouse
- Material Storage
- Purchasing





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# Ingredient Damage

- Rodents
- Insects
- “Slacking” of malt
- Oxidation of hops resins



# Spillage of Ingredients

- Malt
- Hops
- CO<sub>2</sub>
- Packaging Materials
- Chemicals

# Materials Extraction/efficiency

A 10 bbl brew @12° Plato (78%HWE)

Extract Efficiency	lbs Malt
90%	466
85%	495
80%	525
75%	555
70%	584



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# Maximize Extract

- Mill gap
- Gently and efficiently mix the mash
- Keep screens clean
- Run-off slowly
- Sparge matched to run-off
- Water treatment (add Calcium and Magnesium)



# Hop Efficiency

- Early trub removal aids efficiency
- First addition for bitterness
- Later additions require large volumes of hops for effect
- Hops are still relatively cheap but not for much longer
- Store hops well

# Kettle Boiling

- Wort at 20°C. occupies 4% less space than wort at 100°C.
- Boiling evaporation % collect more then boil down
- Maximize trub removal hot/cold break with efficient whirlpooling
- Avoid boil overs
- Whole hops retain more wort

# Fermentation

- Yeast multiplies 5-7 times in volume
- Yeast Growth accounts for 5% of the total FV volume
- Trub removal from the cone
- Consistent pitching, aeration and wort nutrients lead to consistent growth and consistent flavor

# Filtration

- Removing solids reduces beer volume
- Chase beer with de-aerated water
- Flush filter dry with CO<sub>2</sub>
- Preserve CO<sub>2</sub> by linking FV headspace to BBT headspace
- Large brewers brew at above sales gravity
- Industry average losses should be <5%



# Racking Losses

- Beer foaming maintain back pressure
- Allow kegs to cool
- Packaging losses often run around 10%
- Can be as low as 2%

# Other Process Losses

- Every leaking pump seal drips away over 200 litres a year
- Longer lines lead to greater losses
- Every time a tank is emptied the tank is left wet



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# Cleaning Chemical Usage

- Use the Appropriate Chemical Treatment
- Use the Correct Temperature
- Use the Correct Concentration
- Know Your Soil
- Formulated Detergents
- Measure. How Much is a “Glug?”



# Chemical Measurement





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# Water/power/utilities.

- Effluent: side stream high BOD material
- Boiler: maintain and shut down
- Refrigeration: maintain and manage
- Pumps: maintain and manage
- CO<sub>2</sub>/O<sub>2</sub>
- Insulation: saves a lot of energy
- Air compressors
- Energy use audit





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# Top Money Saving Ideas

- Dispense/Packaging
- Equipment Service
- Beer Losses in Process
- Poor Extractions
- Wasted Materials
- Payroll
- Cross Training

