



CIDERY START-UP OPERATIONS AND FACILITY DESIGN

NICK GUNN
BENCHGRAFT CONSULTING
SALEM, OR

NOW WITH MORE 20% MORE PICTURES!

2. Rundown of topics that will be discussed

- Real Estate Considerations
- Legal Documentation needed for startup
- Other Entities to be mindful of....
- Key considerations for facility design
- Budgeting for equipment
- Low cost startup options
- Tools at your disposal



1. Brief description of Wandering Aengus Ciderworks and 10 years of growth

- 2004 Initial launch with 4 acres of cider apples and a 2500 sq foot cidery and tasting room. 400 cases produced
- 2007 Stopped pressing own fruit. 2000 cases produced
- 2009 Used combination of co-packers and own bottling equipment to achieve. 6000 case production
- 2012 Moved to new 7000 sq ft facility and invested in new bottling line. 20,000 case production
- 2014 Investment in new fermentation and bright tank capacity. New crossflow filter. Anticipated production 100,000 cases.

1. Choosing building locations for different types of cider businesses

- Direct to consumer with urban retail potential
- Farmstand agritourism model
- Production cidery with larger distribution base



2. Types of buildings to look for

- Barns, Concrete tilt-up, Steel building, New construction
- How much space do you need now ? In the future ?
- Access to utilities - Water pressure/quality, Power (three phase, single phase, 120, 240, 480v), Natural gas, internet/phone, steam ?
- Price per square not cubic foot - can always grow up
- Proximity to customer/major distribution routes

3. Lease or Buy

- Business plan/level of initial investment will dictate
- Most buildings will need improvement, who gets to keep improvements
- Municipal loan programs can help with building



LEGAL DOCUMENTATION NEEDED FOR STARTUP

1. Entities you will need to obtain permits from
2. Start with good record-keeping and keep it up



1. Entities you will need to obtain permits from

- OLCC (Oregon Liquor Control Commission) or other state liquor control agency - Inventory tracking and consumer safety
- TTB (Alcohol and Tobacco Tax and Trade Bureau) - Inventory tracking and labeling
- ODA (Oregon Department of Agriculture) - Food safety
- FDA (Food and Drug Administration) - bioterrorism act, labeling

1. Entities you will need to obtain permits from

- DEQ (Department of Environmental Quality) if not connected to sanitary sewer - Wastewater
- Local municipality (County or City) - Liquor control plan, building permits, noise and wastewater compliance
- Fire Marshal - MSDS, ingress/egress

2. Start with good record-keeping and keep it up

- Gallons of cider in bulk and bottled, alc%/vol, free and total Sulfites, CO₂, ingredients quantity and source.
- Bonded vs Taxpaid storage



1. OSHA (Occupational Safety and Health Administration)

- Inspections can happen at any time and fines can be levied
- Safety hazards in cider industry
 - Confined spaces
 - Forklifts
 - Lock out/tag out
 - Co2 gas



1. OSHA (Occupational Safety and Health Administration)

- Safety hazards in cider industry
 - High pressure vessels
 - High level workspaces
 - Wet, slippery floors
 - Chemical spills/burns/inhalation



1. OSHA (Occupational Safety and Health Administration)

- Safety hazards in cider industry
 - Heavy lifting/repetitive stress injuries
 - High noise levels - over 85 decibels
 - Broken/flying glass



1. OSHA (Occupational Safety and Health Administration)

- Documentation needed to keep up OSHA happy
 - Standard Operating Procedures
 - Records of workplace injuries
 - Emergency evacuation plan



1. OSHA (Occupational Safety and Health Administration)

- Documentation needed to keep OSHA happy
 - Weekly safety meetings with designated safety coordinator
 - Forklift training for all employees who drive forklifts and maintenance plan for forklift

1. OSHA (Occupational Safety and Health Administration)

- Invite them to do a pre-inspection and assessment
 - No fines levied
 - Three months given to ameliorate



State Employment Department

- Bureau of labor and industries rulemaking enforced
- Exempt vs. non-exempt employees
- legal worker status
- Breaks, Portland sick pay rules, Employee handbook

KEY CONSIDERATIONS FOR FACILITY DESIGN

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- Insulation - Building and Tanks
- Conditioning entire space or just key components
- Washable walls and floors - How much sloped to drain? FRP, Coving



KEY CONSIDERATIONS FOR FACILITY DESIGN

- Workspace flexibility - Able to grow and change production methods over time
 - Minimal fixed equipment
 - Ceiling drops for electrical, water, air, glycol, co2
 - Access to additional electrical, water, air, natural gas for future capacity increase
- Logical flow of materials - Receiving raw materials, fermentation, blending, filtration, packaging, storage shipping of finished goods



KEY CONSIDERATIONS FOR FACILITY DESIGN

- Segmented work stations and safety corridors for forklifts
- Ample lighting
- Proper ventilation - CO₂, Boilers



KEY CONSIDERATIONS FOR FACILITY DESIGN

- Energy conservation - renewable energy options, recycling, heat exchangers, CO2 regeneration, night air cooling, electric car charging, bike racks/storage
- Pallet racking
- Loading docks/ramps, area for tanker receiving, fruit receiving
- CIP down-tubes on all tanks or catwalks
- Separate space for employee breaks/lunch



KEY CONSIDERATIONS FOR FACILITY DESIGN

- Separate space for lab
- Separate space for office/document storage
- Eyewash stations, first aid, handwashing sink and process sink
- GFCI Plugs in wet areas
- No extension cords



KEY CONSIDERATIONS FOR FACILITY DESIGN

- Chemical storage area or cabinet
- Approved ingress/egress with fire extinguishers and exit signs
- Durable materials where applicable
 - Concrete floors with or without epoxy sealer
 - Concrete or plywood on lower 4 feet of wall surface
 - Bollards to protect critical equipment/passageways



KEY CONSIDERATIONS FOR FACILITY DESIGN

- High ceilings with high and wide overhead doors - bigger tanks in the future ...
- Fitting boards, hose racks/pulleys
- If processing fruit, keep that area physically separated from fermentation/packaging if possible



KEY CONSIDERATIONS FOR FACILITY DESIGN

- Outdoor space for empty drum/tote storage, pallets, keg paddock, shipping containers
- Wastewater treatment
 - Settling tanks and dispersion
 - pH Buffering tanks
 - Inline floor drain valve to stop chemical spills
- Cold storage for kegs/fruit/frozen juice



KEY CONSIDERATIONS FOR FACILITY DESIGN

- Fire sprinklers, alarm systems ?
- Ample hot water - extra large capacity boiler/water heater



Tanks

- Material
- Insulation
- Jacketing
- Cladding
- Pressure rating
- Size



Filtration

- Crossflow
- Plate and Frame
- DE
- Centrifuge
- Sterile Membrane
- Lenticular



Bottling line

- Inline
- Rotary
- Still vs carbonated
- Canning
- Bottle and can cost
- Automation



Stabilization

- Sulfites
- Sorbates
- Velcorin
- Sterile filtration
- Pasteurization
- Refrigeration



Kegging

- Keg washing
- Storage
- Logistics
- Costs
- Automation



Pumps, Hoses, Lab, Forklifts, etc



Juice processing

- Cold storage
- Bin dumper
- Crusher
- Sorting/washing line
- Fruit Elevator
- Press technologies -
 - * Bucher/Guyer, Belt, Rack and Cloth, Bladder press, Squeezebox, Heat and enzyme clarification



LOW COST STARTUP OPTIONS

1. Custom crush arrangements
2. Mobile services



1. Custom crush arrangements

- Using local winery, cidery, or co-pack facility for fermentation through packaging
- Can be somewhat expensive depending on services rendered
- Keeping costs variable, less fixed cost - can grow with demand
- Decreased margins

2. Mobile services

- Crossflow Filtration
- Velcorin
- Bottling/Canning
- No need to purchase expensive equipment out of the gate, less capital investment, more money to spend on marketing/sales



TOOLS AT YOUR DISPOSAL TO GAIN ADDITIONAL KNOWLEDGE

1. Cider Institute of North America
2. Northwest Cider Association
3. United States Association of Cider Makers
4. Cider Digest
5. Probrewer
6. Wine Business Monthly

