

# Shelf life determination

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# Topics

- How
- Product stability
- Customer perception
- Stale beer flavours
- Tasting panel & tests
- Sensory training
- Product tasting schedule

# How do you determine shelf life?

- Guess/NI
- Nellie
- Contract packager
- OBs
  
- Scientific method
  - Tasting panel
  - Tasting throughout packaged life
- Tasting – test types
- Record keeping

# Shelf Life aka Product Stability

- Product starts to deteriorate from package date
- BBD or Fill Date
- Perceived to be inherently resistant to infection by pathogenic bacteria
- Many cases beer beyond its best by BBD
- BBDs set by time beer will not develop turbidity
- Artificially set for logistics constraints
- Depends on package type

# Forms of Product Instability

- Microbial spoilage susceptibility
- Light sensitivity
- Propensity to gushing
- Colloidal (haze, non-biological)
  - polished = quality?
- Flavour
  - stale
  - wet cardboard/paper
  - time consumed

# Customer Perception

- Many consumers may not recognize the flavour of stale beer
- Do recognise the normal flavour of their favourite beers - usually the flavours of fresh beer
- As beer ages develops new flavours - fresh flavours diminish
- Most staling due to oxygen

# Flavours Associated With Stale Beers

- Cardboard, sherry, and/or blackcurrant
- Caramel on pale beers
- Darker colour (pilsners)
- Haze &/or ppts
- Aldehydes
- Sweet, bready, toffee, and wine-like (Maillard reaction)
- Lightstruck
- Heavily hopped (bright, floral, citrus to tea-like)

# Tasting Panel & Tests

- Paired comparison
  - Directional difference
  - determines particular attribute variation between two beer (> or < sweet) requires training
  - Preference
  - determines preference between two beers in consumer test & must be untrained panel
- Triangle Test
  - Three samples (x, x, & y) – pick out Y



# Final Beer Testing

- Product profiling
  - standard or trial products
  - changes in raw materials, yeast strain, process changes (time, temps, O<sub>2</sub> levels)
- QC - samples from warehouse
- QA - samples from trade

# Sensory Training

- Flavour profiling/training
  - Aroxa
    - <https://www.aroxa.com/beer/beer-flavour-standard>
  - FlavorActiV
    - <https://www.flavoractiv.com/flavour-standards/reference-standards/index.html#beer>
- Positive release / hold procedure

# In-process Tasting Schedule: Every brew, every vessel, every day

Daily Tasting:			Date:				
Brewing raw materials	Scoring:	1	Good	2	Saleable	3	Poor
	Gyle	Agg. Score	Comments				Tasters
Malt							Head Bwr
Malt							Op 1
Malt							Op 2
Cold Liquor							Office 1
Hot Liquor							Office 2
HL + treatments							Guest 1
First Runnings							Guest 1
Sweet Wort							
Hopped Wort							
Pitched Wort							

From Tank	Scoring:	1	Good	2	Saleable	3	Poor
	Gyle	Agg. Score	Comments				Tasters
FV1							Head Bwr
FV 2							Op 1
FV 3							Op 2
FV 4							Office 1
FV 5							Office 2
CT 1							Guest 1
CT 2							Guest 1
BBT 1							
BBT 2							

# Packaged Products Tasting Schedule

Daily Tasting:			Date:				
Finished Products	Scoring:	1	Good	2	Saleable	3	Poor
Product (C, K, 5, 7, M)	Gyle	Agg. Score	Comments				Tasters
							Head Bwr
							Op 1
							Op 2
							Office 1
							Office 2
							Guest 1
							Guest 1

Product (C, K, 5, 7, M)	Gyle	Comments	Release to trade?	Authority to release
				HB/GM

Cask	Package +1, Package +7, Package +14, Package +28, Package BBD+1
Keg	Package +1, Package +7, Package +14, Package +28, Package BBD+1
Can	Package +1, , Package +28, Package BBD+1
Bottle (Bright)	Package +1, , Package +28, Package BBD+1
Bottle (Bttl. Condit)	Package +1, Package +7, Package +14, Package +28, Package BBD+1
Bulk (out)	Package +1,
Contracted (in)	Receipt +1, Receipt +7, Receipt +28, Receipt +90, Receipt+180, (Receipt + 270), BBD+1