**Supplementary Method 1: Malting & Storage Conditions**

**Maltster A:** This malt was a standard 2-row pale malt (variety not stated). It was produced in March 2020 and stored in typical warehouse conditions. Specific malting parameters were per industry-standard for base malt.

**Maltster B:**

Malt Sample:

* Type: Pale Ale style malt
* Batch Date: March 2021
* Barley: 7250 kg of Butta 12

Steeping Conditions:

* Protocol:
  + 9 hours wet
  + 15 hours dry
  + 9 hours wet
  + 13 hours dry
  + 2 hours wet
* Aeration: 10 minutes on/20 minutes off during wet steeps
* CO2 Exhaust: 5 minutes on/15 minutes off during dry steeps
* Temperature: Wet steeps maintained at 14.5°C
* Moisture Content: 45.8% at the end of steeping

Germination Conditions:

* Depth: 8.5 cm on radiant-cooled germination floor
* Turning: Twice per day using a mechanical malt turner
* Temperature:
  + Top of bed: ~19°C
  + Bottom of bed: ~13.5°C
* Duration: 120 hours

Kilning Conditions:

* Free Dry: 12 hours (8h ramp from 49°C to 60°C, 5h hold at 60°C)
* Force Dry: 7 hours (5h ramp from 71°C to 91°C, 2h hold at 91°C)
* Curing: 5 hours (1h ramp from 91°C to 96°C, 4h hold at 96°C)

Cleaning:

* Equipment: Deculmer and screen cleaner with 5/64” sift screen

Storage Conditions:

* Packaging: 25 kg 3-ply kraft paper bags, sewn closed
* Storage: Pallet racks in ambient warehouse conditions (18°C to 25°C)
* Sampling: Monthly for 12 months, bag trimmed and resewn after each sample

**Maltster C**

Malt Sample:

* Type: Colorado Base Pale/SoCO Gold
* Batch Date: March 2021
* Barley: 5,000 US lbs of Scarlett 2-row

Steeping Conditions:

* Steep 1: 12 hours wet, water temperature 56°F, 65% O2 saturation
* Rest 1: 6 hours with pressurized outside air
* Steep 2: 10 hours
* Rest 2: 6 hours with pressurized outside air

Germination Conditions:

* Fans: Recycle/Germination fans wet started after steep
* Stirring: Twice in 24 hours with humidified air cooling
* Temperature: 65-68°F throughout germination
* Duration: 100-110 hours

Kilning Conditions:

* Stage 1: 120°F until 23% moisture
* Stage 2: 140°F until 10% moisture
* Stage 3: 185°F until less than 5% moisture
* Exhaust: Moist air exhausted out of kiln

Cleaning:

* Process: Cleaned of all rootlets and acrospires, sized using screens and air

Storage Conditions:

* Packaging: Woven poly supersacks (average weight 2,000 US lbs)
* Storage: Warehouse conditions