

Batch #24 - 6 Nov 2022

[www.brewfather.app](https://web.brewfather.app)

Five Pints of Best Fuggles - 4.1%

Best Bitter

Brewer: The Thirsty Otter

Type: All Grain

IBU : 28 (Tinseth)
 BU/GU : 0.65
 Colour : 13 EBC
 Carbonation : 1.8 CO₂-vol

Pre-Boil Gravity : 1.032
 Original Gravity : 1.042
 Total Gravity : 1.043
 Final Gravity : 1.012

Fermentables (1.09 kg)

935 g - Low Colour Maris Otter 3 EBC (86%)
 ^ Lot # 694-201130-111430-176081-1/1
 ^ The Malt Miller (UK) MAL-00-073
 52 g - Crystal Medium 175 EBC (4.8%)
 ^ Lot # 694-201130-111430-176081-1/1
 ^ The malt Miller (UK) MAL-01-035
 50 g - Amber Malt 50 EBC (4.6%)
 ^ Lot # 694-201130-111430-176081-1/1
 ^ The Malt Miller (UK) MAL-02-000
 50 g - Wheat Malt 4 EBC (4.6%)
 ^ Lot # 694-201130-111430-176081-1/1
 ^ The Malt Miller (UK) MAL-04-004
 16 g - Bottling - Sugar, Table (Sucrose) 2 EBC
 ^ Albert Heijn (NL)

Hops (29 g)

60 min - 4 g - Fuggle (Whole) - 5% (10 IBU)
 ^ Worcester Hop Shop (UK)
 30 min - 5 g - Fuggle (Whole) - 5% (9 IBU)
 ^ Worcester Hop Shop (UK)
 15 min - 5 g - Fuggle (Whole) - 5% (6 IBU)
 ^ Worcester Hop Shop (UK)

Hop Stand

20 min hopstand @ 75 °C
 20 min 75 °C - 15 g - Fuggle (Whole) - 5% (3...
 ^ Worcester Hop Shop (UK)

Miscellaneous

Mash - 3.26 l - NL Spa Reine Flat Mineral Water
 ^ AH (NL)
 Mash - 0.29 g - Baking Soda (NaHCO₃)
 ^ Lot # 41190621/3
 ^ Brouwstore (NL) 003.106.2
 Mash - 0.78 g - Calcium Chloride (CaCl₂) 33 %...
 ^ Lot # 115038
 ^ Brouwstore (NL) 055.035.0
 Mash - 0.76 g - Canning Salt (NaCl)
 ^ Albert Heijn (NL)
 Mash - 1.18 g - Epsom Salt (MgSO₄)
 ^ Lot # /2119000091
 ^ Brouwstore (NL) 055.027.7
 Mash - 1.51 g - Gypsum (CaSO₄)
 ^ Brouwmaatje (NL)
 Mash - 0.4 ml - Lactic Acid 80% 80%
 ^ Lot # 20200213
 ^ Brouwstore (NL) 003.002.3
 Sparge - 5.66 l - NL Spa Reine Flat Mineral W...
 ^ AH (NL)

01 Brouwput 5L (60min) (rev 4)

Batch Size : 5.6 L
 Boil Size : 7.76 L
 Post-Boil Vol : 5.96 L

Mash Water : 3.26 L
 Sparge Water : 5.66 L
 Boil Time : 60 min
 Total Water : 8.92 L

13 EBC

Brewhouse Efficiency: 71.8%

Mash Efficiency: 73.3%

Mash Profile

01 One Step Mash (60 min)
 73.3 °C - Strike Temp
 67 °C - 60 min - Temperature

Fermentation Profile

01 Ale + DR + Conditioning
 18 °C - 10 days - Primary
 20 °C - 4 days - Diacetyl rest
 18 °C - 14 days - Carbonation
 18 °C - 28 days - Conditioning

Water Profile

NL Spa Reine Flat Mineral Water (www.ah.nl) (...
 Ca 55 Mg 15 Na 45 Cl 75 SO 150 HCO 40

SO/Cl ratio: 2

Mash pH: 5.38

Sparge pH: 6

Measurements

Mash pH: 5.27

Boil Volume: 7.8

Pre-Boil Gravity: 1.031

Post-Boil Kettle Volume:

Original Gravity:

Fermenter Top-Up:

Fermenter Volume: 4.5

Final Gravity: 1.011

Bottling Volume: 2.9

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Recipe Notes

Target: ABV = 4.1 % IBU = 29, OG = 1.043, FG = 1.011
 Malt is ordered with standard crush @ The Malt Miller (<https://www.themaltmiller.co.uk/>).

Batch Notes

06-11-2022 Brew day
 06-11-2022 09:40 Measured 3.26 L Mash water.
 06-11-2022 09:44 Added 0.29 gram Baking soda.
 06-11-2022 09:48 Added 0.76 gram Canning salt.
 06-11-2022 09:50 Added 1.18 gram Epsom salt.
 06-11-2022 09:52 Added 1.51 gram Gypsum
 06-11-2022 09:54 Added 0.72 gram Calcium chloride.
 06-11-2022 09:56 Added 0.4 mL Lactic acid.
 06-11-2022 10:09 Mash in
 @5 m 5.29@46.4 C.
 @10 m 5.30@42.6 C.
 @15 m 5.30@40.0 C.
 @20 m 5.31@37.8 C.
 @30 m 5.27@44.3 C.
 @35 m 5.25@49.6 C.
 @40 m 5.26@48.3 C.
 @45 m 5.26@47.8 C.
 @50 m 5.26@44.1 C.
 @55 m 5.26@44.5 C.
 @60 m 5.27@45.9 C.
 06-11-2022 11:20 1.25 L sparge water @73.2 C.
 06-11-2022 11:35 1.3 L sparge water @72.1 C.
 06-11-2022 11:50 1.7 L sparge water @72.7 C.
 06-11-2022 12:10 SG = 1.030@48.2 C. --> SG = 1.040@20 C.
 06-11-2022 12:23 1.0 L sparge water @74.2 C.
 06-11-2022 12:53 SG = 1.024@43.4 C. --> SG = 1.031@20 C.
 06-11-2022 13:00 Added 0.18 gram Lithoprop K.
 06-11-2022 13:14 Start of rolling boil.
 06-11-2022 13:14 Added 4 grams Fuggie hops.
 06-11-2022 13:44 Added 5 grams Fuggie hops.
 06-11-2022 13:59 Added 5 grams Fuggie hops.
 06-11-2022 14:04 Added 1 gram Irish Moss.
 06-11-2022 14:05 Inserted wort chiller and temperature measurement.
 06-11-2022 14:14 Flame out.
 06-11-2022 15:10 Start hopstand @72.3 C. Put on a simmer to maintain 75 C.
 06-11-2022 15:30 End hopstand @72.0 C.

Cooling overnight.

07-11-2022 19:30 pitched 2 grams yeast @ 18.7 C.

Day 1 in fermentation

08-11-2022 00:00 16.1 C.
 08-11-2022 04:00 16.1 C.
 08-11-2022 08:00 16.2 C, dp = 45 mm H2O, no bubbles.
 08-11-2022 12:00 16.4 C, dp = 50 mm H2O, one bubble.
 08-11-2022 16:00 15.9 C, dp = 50 mm H2O, many bubbles.
 08-11-2022 20:00 16.7 C, dp = 50 mm H2O, many bubbles.

Day 2 in fermentation

09-11-2022 01:00 16.3 C.
 09-11-2022 06:30 16.2 C.
 09-11-2022 08:00 16.2 C, dp = 50 mm H2O, many bubbles.
 09-11-2022 12:00 16.6 C.
 09-11-2022 16:00 16.7 C.
 09-11-2022 19:30 16.7 C, dp = 50 mm H2O, many bubbles.

Day 3 in fermentation

10-11-2022 00:00 16.1 C, dp = 50 mm H2O, two bubbles.
 10-11-2022 04:00 16.3 C.

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Batch Notes

10-11-2022 08:00 16.6 C, dp = 45 mm H₂O, no bubbl es.
 10-11-2022 12:00 16.8 C.
 10-11-2022 16:00 17.0 C.
 10-11-2022 19:00 16.4 C, dp = 45 mm H₂O, no bubbl es.
 10-11-2022 22:30 18.5 C, dp = 45 mm H₂O, no bubbl es.

Day 4 in fermentation

11-11-2022 00:00 18.6 C.
 11-11-2022 04:00 19.0 C.
 11-11-2022 07:00 18.7 C, dp = 45 mm H₂O, no bubbl es.
 11-11-2022 14:30 18.7 C, dp = 40 mm H₂O, no bubbl es.
 11-11-2022 18:00 18.4 C, dp = 40 mm H₂O, no bubbl es.
 11-11-2022 20:00 19.0 C.

Day 5 in fermentation

12-11-2022 00:00 18.3 C.
 12-11-2022 04:00 18.2 C.
 12-11-2022 08:00 18.9 C.
 12-11-2022 10:00 18.3 C, dp = 45 mm H₂O, no bubbl es.
 12-11-2022 12:00 18.3 C.
 12-11-2022 16:00 18.2 C, dp = 45 mm H₂O, no bubbl es.
 12-11-2022 20:30 19.0 C, dp = 49 mm H₂O, no bubbl es.

Day 6 in fermentation

13-11-2022 00:00 18.9 C.
 13-11-2022 04:00 18.3 C.
 13-11-2022 08:00 18.3 C, dp = 45 mm H₂O, no bubbl es.
 13-11-2022 12:00 19.0 C.
 13-11-2022 16:00 19.0 C.
 13-11-2022 18:00 18.0 C, dp = 40 mm H₂O, no bubbl es.
 13-11-2022 22:30 18.8 C, dp = 45 mm H₂O, no bubbl es.

Day 7 in fermentation

14-11-2022 00:00 18.7 C.
 14-11-2022 04:00 18.2 C.
 14-11-2022 08:00 18.3 C, dp = 45 mm H₂O, no bubbl es.
 14-11-2022 12:45 18.7 C, dp = 45 mm H₂O, no bubbl es.
 14-11-2022 16:45 18.2 C, dp = 40 mm H₂O, no bubbl es.
 14-11-2022 20:30 18.1 C, dp = 40 mm H₂O, no bubbl es.

Day 8 in fermentation

15-11-2022 02:00 18.3 C.
 15-11-2022 07:30 18.8 C, dp = 40 mm H₂O, no bubbl es.
 15-11-2022 12:00 18.0 C.
 15-11-2022 16:00 18.3 C.
 15-11-2022 19:00 18.1 C, dp = 40 mm H₂O, no bubbl es.
 15-11-2022 22:30 18.1 C, dp = 40 mm H₂O, no bubbl es.

Day 9 in fermentation

16-11-2022 07:00 18.8 C, dp = 45 mm H₂O, no bubbl es.
 16-11-2022 12:00 18.8 C.
 16-11-2022 16:00 18.6 C.
 16-11-2022 20:00 18.4 C, dp = 40 mm H₂O, no bubbl es.

Day 10 in fermentation

17-11-2022 04:00 18.5 C.
 17-11-2022 07:00 18.2 C, dp = 45 mm H₂O, no bubbl es.
 17-11-2022 14:00 18.1 C, dp = 40 mm H₂O, no bubbl es.
 17-11-2022 16:00 20.0 C.
 17-11-2022 20:00 19.7 C.

Day 11 in fermentation

18-11-2022 00:00 19.4 C.
 18-11-2022 04:00 19.1 C.
 18-11-2022 08:00 19.9 C.
 18-11-2022 12:00 19.9 C.

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Batch Notes

18-11-2022 16:00 19.6 C.
18-11-2022 20:00 19.1 C.

Day 12 in fermentation

19-11-2022 00:00 19.3 C.
19-11-2022 04:00 20.0 C.
19-11-2022 08:00 19.6 C.
19-11-2022 12:15 19.0 C.
19-11-2022 16:00 19.3 C.
19-11-2022 20:00 20.0 C.

Day 13 in fermentation

20-11-2022 00:00 19.7 C.
20-11-2022 04:00 19.0 C.
20-11-2022 08:00 19.2 C.
20-11-2022 12:00 19.8 C.
20-11-2022 16:00 19.8 C.
20-11-2022 20:00 19.3 C.

Day 14 in fermentation

21-11-2022 00:00 19.1 C.
21-11-2022 04:00 19.8 C.
21-11-2022 08:00 20.0 C.
21-11-2022 12:00 19.1 C.
21-11-2022 16:00 19.3 C, dp = 40 mm H2O, no bubbl es.
21-11-2022 20:00 20.0 C, dp = 45 mm H2O, no bubbl es.

Day 15 in fermentation

22-11-2022 00:00 19.9 C.
22-11-2022 04:00 19.0 C.
22-11-2022 07:30 19.0 C, dp = 40 mm H2O, no bubbl es.
22-11-2022 12:00 20.0 C.
22-11-2022 16:00 19.6 C.
22-11-2022 20:00 19.1 C, dp = 35 mm H2O, no bubbl es.

Day 16 in fermentation

23-11-2022 00:30 18.0 C.
23-11-2022 04:15 18.0 C.
23-11-2022 07:30 17.9 C, dp = -45 mm H2O, no bubbl es.
23-11-2022 11:45 17.3 C.
23-11-2022 16:00 17.0 C.
23-11-2022 19:00 17.5 C, dp = -45 mm H2O, no bubbl es.
23-11-2022 22:30 17.0 C, dp = -40 mm H2O, no bubbl es.

Day 17 in fermentation

24-11-2022 00:00 18.9 C.
24-11-2022 04:00 18.9 C.
24-11-2022 08:15 18.0 C.
24-11-2022 12:00 18.2 C.
24-11-2022 16:00 19.0 C.
24-11-2022 19:00 19.0 C, dp = -40 mm H2O, no bubbl es.

Day 18 in fermentation

25-11-2022 00:30 18.3 C.
25-11-2022 07:00 18.4 C, dp = -40 mm H2O, no bubbl es.
25-11-2022 12:00 18.0 C.
25-11-2022 16:00 18.8 C.
25-11-2022 18:00 18.4 C, dp = -45 mm H2O, no bubbl es.
25-11-2022 20:30 18.9 C.
25-11-2022 23:45 18.9 C.

Day 19 in fermentation

26-11-2022 08:30 19.0 C.
26-11-2022 10:00 18.0 C, dp = -45 mm H2O, no bubbl es.
26-11-2022 12:00 18.8 C.
26-11-2022 16:00 18.0 C.

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Batch Notes

26-11-2022 20:00 18.9 C.

Day 20 in fermentation

27-11-2022 00:00 19.0 C.

27-11-2022 04:00 18.2 C.

27-11-2022 08:00 18.4 C.

27-11-2022 12:00 19.0 C.

27-11-2022 13:55 17.9 C, dp = 0 mm H₂O, SG = 1.011, pH = 4.67.

Bottling day

27-11-2022 14:00 Filled 9 Steiner bottles (33 cl).

Day 0 in conditioning in the brew fridge

27-11-2022 16:00 16.0 C.

27-11-2022 20:00 17.9 C.

Day 1 in conditioning

28-11-2022 00:00 19.0 C.

28-11-2022 04:00 17.8 C.

28-11-2022 08:00 19.0 C.

28-11-2022 12:00 17.9 C.

28-11-2022 16:00 19.0 C.

28-11-2022 20:00 17.8 C.

Day 2 in Conditioning

29-11-2022 02:45 18.1 C.

29-11-2022 03:45 17.8 C.

29-11-2022 08:00 18.8 C.

29-11-2022 12:00 17.8 C.

29-11-2022 16:00 18.9 C.

29-11-2022 20:00 17.8 C.

Day 3 in conditioning

30-11-2022 00:00 18.6 C.

30-11-2022 04:00 17.8 C.

30-11-2022 08:00 18.4 C.

30-11-2022 12:00 18.3 C.

30-11-2022 16:00 18.2 C.

30-11-2022 20:00 18.6 C.

Day 4 in conditioning

01-12-2022 00:00 17.8 C.

01-12-2022 04:00 19.0 C.

01-12-2022 08:00 17.8 C.

01-12-2022 12:00 18.5 C.

01-12-2022 16:00 18.0 C.

01-12-2022 20:00 18.1 C.

Day 5 in conditioning

02-12-2022 00:00 19.0 C.

02-12-2022 04:00 17.7 C.

02-12-2022 08:00 18.4 C.

02-12-2022 12:00 18.8 C.

02-12-2022 16:00 17.7 C.

02-12-2022 20:00 18.2 C.

Day 6 in conditioning

03-12-2022 00:00 18.6 C.

03-12-2022 04:00 18.8 C.

03-12-2022 08:00 18.9 C.

03-12-2022 12:00 17.6 C.

03-12-2022 16:00 17.6 C.

03-12-2022 20:00 17.9 C.

Day 7 in conditioning

04-12-2022 00:00 18.1 C.

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Batch Notes

04-12-2022 04:00 18.3 C.
04-12-2022 08:00 18.3 C.
04-12-2022 12:00 18.3 C.
04-12-2022 16:00 18.3 C.
04-12-2022 20:00 18.3 C.

Day 8 in conditioning

05-12-2022 00:00 18.3 C.
05-12-2022 04:00 18.5 C.
05-12-2022 08:00 18.9 C.
05-12-2022 12:00 19.3 C.
05-12-2022 16:00 18.8 C.
05-12-2022 20:00 18.2 C.

Day 9 in conditioning

06-12-2022 00:00 18.9 C.
06-12-2022 04:00 19.6 C.
06-12-2022 08:00 18.1 C.
06-12-2022 12:00 18.5 C.
06-12-2022 16:00 19.3 C.
06-12-2022 20:00 18.4 C.

Day 10 in conditioning

07-12-2022 00:00 18.3 C.
07-12-2022 04:00 19.0 C.
07-12-2022 08:00 19.3 C.
07-12-2022 12:00 19.5 C.
07-12-2022 16:00 18.0 C.
07-12-2022 20:00 18.5 C.

Day 11 in conditioning

08-12-2022 00:00 19.0 C.
08-12-2022 04:00 19.3 C.
08-12-2022 08:00 18.1 C.
08-12-2022 12:15 18.2 C.
08-12-2022 16:15 18.7 C.
08-12-2022 20:00 19.1 C.

Day 12 in conditioning

09-12-2022 00:00 19.1 C.
09-12-2022 04:00 19.1 C.
09-12-2022 08:00 19.1 C.
09-12-2022 12:00 19.1 C.
09-12-2022 16:00 19.1 C.
09-12-2022 20:15 19.0 C.

Day 13 in conditioning

10-12-2022 00:00 18.9 C.
10-12-2022 04:00 18.7 C.
10-12-2022 08:00 18.6 C.
10-12-2022 12:00 18.4 C.
10-12-2022 16:00 18.3 C.
10-12-2022 20:00 18.2 C.

Day 14 in conditioning

11-12-2022 00:00 18.2 C.
11-12-2022 04:00 18.2 C.
11-12-2022 08:00 18.2 C.
11-12-2022 12:00 18.2 C.
11-12-2022 16:00 18.2 C.
11-12-2022 20:00 18.2 C.

Day 15 in conditioning

12-12-2022 00:00 18.3 C.
12-12-2022 04:00 18.3 C.
12-12-2022 08:00 18.3 C.

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Batch Notes

12-12-2022 12:00 18.3 C.
12-12-2022 16:00 18.3 C.
12-12-2022 20:00 18.1 C.

Day 16 in conditioning
13-12-2022 00:00 17.8 C.
13-12-2022 04:00 17.3 C.
13-12-2022 08:00 16.7 C.
13-12-2022 12:00 16.1 C.
13-12-2022 16:00 16.0 C.
13-12-2022 20:00 15.8 C.

Day 18 in conditioning
15-12-2022 20:48 16.8 C.

Day 21 in conditioning
18-12-2022 14:00 13.7 C.
18-12-2022 22:30 13.6 C.

Day 23 in conditioning
20-12-2022 22:00 14.2 C.

Day 24 in conditioning
21-12-2022 08:00 14.0 C.
21-12-2022 20:30 14.5 C.

Day 25 in conditioning
22-12-2022 08:00 14.5 C.

Day 26 in conditioning
23-12-2022 07:00 14.4 C.

Day 32 in conditioning
29-12-2022 20:00 14.1 C.

Day 33 in conditioning
30-12-2022 00:00 14.1 C.
30-12-2022 10:00 14.7 C.

Day 34 in conditioning
31-12-2022 11:00 14.1 C.

Day 35 in conditioning
01-01-2023 23:00 15.2 C.

Day 36 in conditioning
02-01-2023 07:30 15.7 C.
02-01-2023 20:00 15.7 C.

Day 37 in conditioning
03-01-2023 20:00 15.5 C.

Day 38 in conditioning
04-01-2023 00:00 15.5 C.
04-01-2023 07:30 15.4 C.
04-01-2023 21:00 15.5 C.

Day 39 in conditioning
05-01-2023 23:00 15.6 C.

Day 41 in conditioning
07-01-2023 18:00 15.2 C.

Day 42 in conditioning
08-01-2023 21:00 14.6 C.

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Extra Measured Values

Strike Water pH	
Strike Water Temperature	73.3
Sparge Water Temperature	72.8
Sparge Water pH	6
Pitch Temperature	18.7

Batch Log

6 November 2022	Brew Date
6 November 2022 09:40	Status: Brewing
7 November 2022 19:30	SV = 17.0 C.
7 November 2022	Fermentation Start
10 November 2022 19:30	SV = 19.0 C.
17 November 2022 14:00	SV = 20.0 C.
22 November 2022 21:25	SV = 18.0 C.
23 November 2022 22:35	SV = 19.0 C.
27 November 2022 14:00	Filled 9 Steinie bottles (33 cl).
27 November 2022	Bottling Date
4 December 2022 17:20	SV = 19.5 C.
13 December 2022 20:30	Bottles from the brew shed to indoors.
8 January 2023 23:59	Status: Completed

Taste

3.2 / 5.0