

czarne żyto

- Gravity **18.7 BLG**
- ABV **8.1 %**
- IBU **55**
- SRM **33.1**
- Style **Black IPA**

Batch size

- Expected quantity of finished beer **23 liter(s)**
- Trub loss **5 %**
- Size with trub loss **24.6 liter(s)**
- Boil time **70 min**
- Evaporation rate **10 %/h**
- Boil size **30 liter(s)**

Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **28.7 liter(s)**
- Total mash volume **36.9 liter(s)**

Steps

- Temp **45 C**, Time **20 min**
- Temp **64 C**, Time **70 min**
- Temp **78 C**, Time **15 min**

Mash step by step

- Heat up **28.7 liter(s)** of strike water to **48.6C**
- Add grains
- Keep mash **20 min** at **45C**
- Keep mash **70 min** at **64C**
- Keep mash **15 min** at **78C**
- Sparge using **9.5 liter(s)** of **76C** water or to achieve **30 liter(s)** of wort

Fermentables

Type	Name	Amount	Yield	EBC
Grain	Simpsons - Maris Otter	3.5 kg (40.2%)	81 %	6
Grain	Weyermann - Pilsner Malt	1 kg (11.5%)	81 %	5
Grain	Rye Malt	1.2 kg (13.8%)	81 %	10
Grain	Weyermann - Carapils	0.4 kg (4.6%)	78 %	4
Grain	Weyermann cararye	0.5 kg (5.7%)	75 %	180
Grain	Weyermann - Chocolate Rye	0.3 kg (3.4%)	65 %	750
Grain	Weyermann - Chocolate Wheat	0.2 kg (2.3%)	74 %	1000
Grain	Weyermann - Dehusked Carafa II	0.2 kg (2.3%)	70 %	1100
Grain	Płatki owsiane	0.5 kg (5.7%)	60 %	3
Grain	Płatki pszeniczne	0.4 kg (4.6%)	60 %	3
Sugar	Cukier trzcinowy	0.5 kg (5.7%)	100 %	0

Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Iunga	15 g	60 min	12.4 %
Boil	Simcoe	20 g	15 min	12.7 %
Boil	Idaho 7	20 g	15 min	12.1 %
Aroma (end of boil)	Simcoe	20 g	10 min	12.7 %
Aroma (end of boil)	Idaho 7	20 g	10 min	12.1 %
Whirlpool	Simcoe	30 g	10 min	12.7 %
Whirlpool	Idaho 7	30 g	10 min	12.1 %
Dry Hop	Simcoe Cryo	25 g	4 day(s)	25.4 %
Dry Hop	Idaho 7	80 g	4 day(s)	12.1 %
Dry Hop	Simcoe	15 g	4 day(s)	12.7 %

Yeasts

Name	Type	Form	Amount	Laboratory
Safale US-05	Ale	Slant	100 ml	Fermentis