

# czarna dupa

- Gravity **15.4 BLG**
- ABV **6.5 %**
- IBU **36**
- SRM **32.9**
- Style **American Stout**

## Batch size

- Expected quantity of finished beer **20 liter(s)**
- Trub loss **5 %**
- Size with trub loss **21 liter(s)**
- Boil time **90 min**
- Evaporation rate **10 %/h**
- Boil size **26.4 liter(s)**

## Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3.2 liter(s) / kg**
- Mash size **20 liter(s)**
- Total mash volume **26.3 liter(s)**

## Steps

- Temp **68 C**, Time **60 min**
- Temp **75 C**, Time **10 min**

## Mash step by step

- Heat up **20 liter(s)** of strike water to **75.5C**
- Add grains
- Keep mash **60 min** at **68C**
- Keep mash **10 min** at **75C**
- Sparge using **12.7 liter(s)** of **76C** water or to achieve **26.4 liter(s)** of wort

## Fermentables

Type	Name	Amount	Yield	EBC
Grain	Strzegom Pilzneński	4 kg (64%)	80 %	4
Grain	Żytni	1.5 kg (24%)	85 %	8
Grain	Strzegom Czekoladowy jasny	0.2 kg (3.2%)	68 %	400
Grain	Jęczmień palony	0.35 kg (5.6%)	55 %	1400
Grain	Strzegom Karmel 300	0.2 kg (3.2%)	70 %	299

## Hops

Use for	Name	Amount	Time	Alpha acid
Boil	Marynka	30 g	60 min	10 %
Boil	Centennial	30 g	5 min	10.5 %
Whirlpool	Citra	10 g	0 min	12 %
Dry Hop	Citra	30 g	3 day(s)	12 %

## Yeasts

Name	Type	Form	Amount	Laboratory
Safale US-05	Ale	Dry	11.5 g	Fermentis