

# Czarny Las

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- Gravity **18 BLG**
- ABV **7.7 %**
- IBU **31**
- SRM **78.8**
- Style **Foreign Extra Stout**

## Batch size

- Expected quantity of finished beer **23 liter(s)**
- Trub loss **5 %**
- Size with trub loss **24.1 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **29 liter(s)**

## Mash information

- Mash efficiency **87 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **22.5 liter(s)**
- Total mash volume **30 liter(s)**

## Steps

- Temp **62 C**, Time **60 min**
- Temp **72 C**, Time **20 min**
- Temp **78 C**, Time **5 min**

## Mash step by step

- Heat up **22.5 liter(s)** of strike water to **69C**
- Add grains
- Keep mash **60 min** at **62C**
- Keep mash **20 min** at **72C**
- Keep mash **5 min** at **78C**
- Sparge using **14 liter(s)** of **76C** water or to achieve **29 liter(s)** of wort

## Fermentables

| Type  | Name                     | Amount        | Yield | EBC  |
|-------|--------------------------|---------------|-------|------|
| Grain | Mariss Otter Pale Ale    | 4 kg (53.3%)  | 80 %  | 7    |
| Grain | Fawcett - Pale Chocolate | 1.5 kg (20%)  | 71 %  | 600  |
| Grain | Fawcett Chocolate        | 1.5 kg (20%)  | 72 %  | 1200 |
| Grain | Fawcett Żytni palony     | 0.5 kg (6.7%) | 85 %  | 8    |

## Hops

| Use for | Name       | Amount | Time   | Alpha acid |
|---------|------------|--------|--------|------------|
| Boil    | Willamette | 40 g   | 60 min | 6.1 %      |
| Boil    | Willamette | 25 g   | 30 min | 6.1 %      |
| Boil    | Willamette | 35 g   | 5 min  | 6.1 %      |

## Yeasts

| Name        | Type | Form  | Amount | Laboratory |
|-------------|------|-------|--------|------------|
| Safale S-04 | Ale  | Slant | 200 ml | Safale     |