

FES 20

- Gravity **20.2 BLG**
- ABV ---
- IBU **36**
- SRM **66.5**
- Style **Foreign Extra Stout**

Batch size

- Expected quantity of finished beer **10 liter(s)**
- Trub loss **15 %**
- Size with trub loss **11.5 liter(s)**
- Boil time **90 min**
- Evaporation rate **10 %/h**
- Boil size **14.4 liter(s)**

Mash information

- Mash efficiency **69 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **12.5 liter(s)**
- Total mash volume **16.6 liter(s)**

Steps

- Temp **67 C**, Time **45 min**
- Temp **72 C**, Time **25 min**
- Temp **78 C**, Time **10 min**

Mash step by step

- Heat up **12.5 liter(s)** of strike water to **74.8C**
- Add grains
- Keep mash **45 min** at **67C**
- Keep mash **25 min** at **72C**
- Keep mash **10 min** at **78C**
- Sparge using **6.1 liter(s)** of **76C** water or to achieve **14.4 liter(s)** of wort

Fermentables

| Type | Name | Amount | Yield | EBC |
|----------------|---------------------------------|----------------|--------|------|
| Grain | BESTMALZ - Bestt Pale Ale | 2 kg (44.9%) | 80.5 % | 6 |
| Grain | Strzegom Monachijski typ II | 1 kg (22.5%) | 79 % | 22 |
| Grain | Strzegom Karmel 30 | 0.35 kg (7.9%) | 75 % | 30 |
| Grain | Fawcett - Dark Crystal | 0.2 kg (4.5%) | 71 % | 300 |
| Grain | Caraaroma | 0.2 kg (4.5%) | 78 % | 400 |
| Grain | Weyermann - Dehusked Carafa I | 0.2 kg (4.5%) | 70 % | 690 |
| Grain | Strzegom Czekoladowy ciemny | 0.2 kg (4.5%) | 68 % | 1200 |
| Liquid Extract | Miód Gryczany (Buckwheat Honey) | 0.3 kg (6.7%) | 70 % | 40 |

Hops

| Use for | Name | Amount | Time | Alpha acid |
|---------|--------|--------|--------|------------|
| Boil | Target | 20 g | 70 min | 10.5 % |

Yeasts

| Name | Type | Form | Amount | Laboratory |
|-------------|-------------|-------------|---------------|-------------------|
| Safale S-04 | Ale | Dry | 11 g | Safale |