

# biały kłos

- Gravity **12.4 BLG**
- ABV **5 %**
- IBU **28**
- SRM **3.6**
- Style **Witbier**

## Batch size

- Expected quantity of finished beer **12 liter(s)**
- Trub loss **5 %**
- Size with trub loss **12.6 liter(s)**
- Boil time **60 min**
- Evaporation rate **10 %/h**
- Boil size **15.8 liter(s)**

## Mash information

- Mash efficiency **80 %**
- Liquor-to-grist ratio **3.5 liter(s) / kg**
- Mash size **10.8 liter(s)**
- Total mash volume **13.9 liter(s)**

## Steps

- Temp **63 C**, Time **40 min**
- Temp **72 C**, Time **20 min**
- Temp **78 C**, Time **10 min**

## Mash step by step

- Heat up **10.8 liter(s)** of strike water to **69.2C**
- Add grains
- Keep mash **40 min** at **63C**
- Keep mash **20 min** at **72C**
- Keep mash **10 min** at **78C**
- Sparge using **8.1 liter(s)** of **76C** water or to achieve **15.8 liter(s)** of wort

## Fermentables

| Type  | Name             | Amount         | Yield | EBC |
|-------|------------------|----------------|-------|-----|
| Grain | Płatki orkiszowe | 1.2 kg (38.7%) | 60 %  | 4   |
| Grain | Pszeniczny       | 1.5 kg (48.4%) | 85 %  | 4   |
| Grain | Płatki owsiane   | 0.4 kg (12.9%) | 85 %  | 3   |

## Hops

| Use for             | Name              | Amount | Time   | Alpha acid |
|---------------------|-------------------|--------|--------|------------|
| Boil                | Target            | 15 g   | 60 min | 10.5 %     |
| Aroma (end of boil) | Lublin (Lubelski) | 5 g    | 5 min  | 4 %        |

## Yeasts

| Name                              | Type | Form  | Amount | Laboratory |
|-----------------------------------|------|-------|--------|------------|
| Mangrove Jack's - Belgian Wit M21 | Ale  | Slant | 200 ml | Fermentis  |

## Extras

| Type   | Name     | Amount | Use for | Time   |
|--------|----------|--------|---------|--------|
| Flavor | curacao  | 15 g   | Boil    | 10 min |
| Spice  | kolendra | 7 g    | Boil    | 10 min |