

Żytniak

- Gravity **14 BLG**
- ABV **5.8 %**
- IBU **32**
- SRM **4.4**
- Style **American Wheat or Rye Beer**

Batch size

- Expected quantity of finished beer **21 liter(s)**
- Trub loss **5 %**
- Size with trub loss **23.1 liter(s)**
- Boil time **60 min**
- Evaporation rate **15 %/h**
- Boil size **29 liter(s)**

Mash information

- Mash efficiency **70 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **19.5 liter(s)**
- Total mash volume **26 liter(s)**

Steps

- Temp **53 C**, Time **15 min**
- Temp **66 C**, Time **60 min**
- Temp **76 C**, Time **10 min**

Mash step by step

- Heat up **19.5 liter(s)** of strike water to **58.5C**
- Add grains
- Keep mash **15 min** at **53C**
- Keep mash **60 min** at **66C**
- Keep mash **10 min** at **76C**
- Sparge using **16 liter(s)** of **76C** water or to achieve **29 liter(s)** of wort

Fermentables

| Type | Name | Amount | Yield | EBC |
|---------|-----------------------------|---------------|--------|-----|
| Grain | Briess - 2 Row Brewers Malt | 5 kg (75.8%) | 80.5 % | 4 |
| Grain | Briess - Rye Malt | 1 kg (15.2%) | 80 % | 7 |
| Grain | Briess - Wheat Malt, White | 0.5 kg (7.6%) | 85 % | 5 |
| Adjunct | Rice Hulls | 0.1 kg (1.5%) | 1 % | 0 |

Hops

| Use for | Name | Amount | Time | Alpha acid |
|-----------|---------|--------|----------|------------|
| Boil | Topaz | 10 g | 60 min | 16 % |
| Boil | Fuggles | 15 g | 15 min | 5.3 % |
| Boil | Topaz | 10 g | 15 min | 16 % |
| Boil | Fuggles | 15 g | 5 min | 5.3 % |
| Boil | Topaz | 15 g | 5 min | 15 % |
| Whirlpool | Topaz | 30 g | --- | 15 % |
| Whirlpool | Fuggles | 35 g | --- | 4.5 % |
| Dry Hop | Fuggles | 35 g | 3 day(s) | 5.3 % |
| Dry Hop | Topaz | 35 g | 3 day(s) | 16 % |

Yeasts

| Name | Type | Form | Amount | Laboratory |
|------------------------------------|------|------|--------|-----------------|
| Mangrove Jack's -M15 Empire Ale | Ale | Dry | 20 g | Mangrove Jack's |

Extras

| Type | Name | Amount | Use for | Time |
|-------------|-----------------|--------|---------|--------|
| Water Agent | lactic acid 80% | 11 g | Mash | 60 min |