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**Dillo Trolley Pale Ale**

**Kit Type: Mini-Mash**

**STEP 1: CLEAN AND SANITIZE**

All equipment must be clean before brewing. Then, sanitize your equipment using products such as One Step, Iodophor, or Star San. If required by the manufacturer, rinse off the sanitizer thoroughly.

**STEP 2: STEEPING THE GRAIN**

Your kit will contain the following grain:

<b>1 LB Pale Ale Malt</b>
<b>12 oz Crystal 40L</b>
<b>8 oz Carafoam</b>
<b>4 oz Honey Malt</b>

Heat up 3 gallons of water to 160° F. Place the grains in a mesh grain bag and steep in the hot water for 60 minutes. Occasionally dunk the grain in and out of the water or stir the grains inside the mesh bag so that the grains remain an oatmeal-like consistency. Check the temperature of the grain mixture every 10-15 minutes and heat as necessary if the temperature falls below 150°.

**STEP 3: RINSING THE GRAIN**

Lift the bag of grain from the pot. Strain 4 cups of hot water through the grains in the bag and into the pot until the bag stops dripping (Don't squeeze the grain bag during this process). Discard the grains.

**STEP 4: THE BOIL**

Bring the sugary liquid (also known as "wort") to a boil. Occasionally stir to prevent the wort from boiling over. Once the wort is boiling, remove the pot from the burner and add the malt extract and additional sugars listed below:

<b>6 LB Pilsen Light LME</b>

Stir the wort thoroughly to ensure that the malt extract is dissolved. Return the pot to the heat. Continue boiling the wort, stirring occasionally the wort to prevent the wort from boiling over.

**STEP 5: ADDING THE HOPS**

Now that the wort is boiling, you are ready to add the hops. The total boil time will be **60 Minutes**

With **60 Minutes** remaining, add these **bittering** hops:

<b>0.5 oz Green Bullet Hops</b>

With **15 Minutes** remaining, add these **flavor** hops:

<b>0.5 oz Green Bullet Hops</b>
<b>0.5 oz Cashmere Hops</b>

With **5 Minutes** remaining, add these **aroma** hops:

<b>0.5 oz Cashmere Hops</b>

**STEP 6: CHILL THE WORT**

After the boil, you will need to quickly cool your wort to 80°F. Fill a sink with ice water and place the pot in the ice water bath. You may need to change the ice water a couple of times, because it will warm up quickly. Once the wort has cooled to 80°F, pour the wort into a sanitized primary fermenter (commonly a 6.5 gallon or 7.9 gallon plastic bucket). You may top up the fermenter to 5.25 gallons if you ended up with less than 5.25 gallons of wort after the boil. If you have a hydrometer, you may now check the specific gravity of the wort to accurately determine how much alcohol you will have at the end of fermentation. To read a hydrometer, refer to the instructions that come with the hydrometer.

The original specific gravity should be approximately: **1.052**

**STEP 7: PITCHING YOUR YEAST**

Stir well to aerate the wort before pitching your yeast. This kit came with one of the following yeasts:

**Recommended Yeast:**

White Labs
<b>California Ale 001</b>
Wyeast
<b>American Ale 1056</b>
Dry Yeast
<b>SafAle US-05</b>

Sprinkle the yeast around the top of the wort. Now you will be ready to start the primary fermentation.

### STEP 8: PRIMARY FERMENTATION

Put the lid on the fermenter with an airlock installed. Fill the airlock to the fill line with water. After 12-36 hours, CO<sub>2</sub> will begin to bubble up through the airlock. After 5-7 days, the bubbling in the airlock will begin to slow and a thick "yeast cake" will form at the bottom of the fermenter.

### STEP 9: SECONDARY FERMENTATION

After 7 days, transfer the wort to the secondary fermenter (commonly a 5 gallon glass carboy). Use a sanitized auto-siphon to siphon the beer to the sanitized secondary fermenter. Be careful to only transfer the beer while leaving as much of yeast cake and sediment at the bottom of the primary fermenter behind. Put a sanitized drilled stopper into the top of your jug. Seal the hole of the stopper with an airlock and fill the airlock with water up to the fill line.

### STEP 10: DRY HOPPING

If the recipe calls for dry hopping, add these hops to the secondary fermenter at this point:


After you add your hops, replace the airlock on the fermenter and let the beer continue to ferment for another week.

### STEP 11: BOTTLING

After 1 week in the secondary fermenter, there should be no more activity bubbling in the airlock. You are now ready to bottle the beer. If there is still bubbling in the airlock, wait an additional 2 days before you begin to bottle. If you have a hydrometer, take a gravity reading.

The final specific gravity should be approximately: **1.011**

To calculate the alcohol content of the beer, subtract the final gravity from the original gravity and then multiply by 131.

The equipment and ingredients you will need to bottle include an auto-siphon tubing, a capper and caps (unless you are using flip top beer bottles), your primary fermentation bucket, a small sauce pan, 2 cups of water, about 50 bottles, and 5 ounces of priming sugar. Make sure all of your equipment and bottles are clean and sanitized.

Put 2 cups of water in a sauce pan and bring to a boil. Add 5 ounce of priming sugar to the sauce pan and boil for a minute. Let the sugar mixture cool to 80°F.

Next, pour the cooled sugar water into the plastic bucket (primary fermenter), and then siphon the beer from the secondary fermenter into the bucket. Be careful to not disturb the sediment on the bottom of the fermenter. The sugar mixture you added to the beer is necessary for the beer to carbonate in the bottle. If your beer contains flavoring (listed below), add the flavoring to the bucket before bottling.

#### Flavoring to add before bottling

No Flavoring
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Once the beer is in the bucket, place the bucket on a counter top. Attach the bottle filler to the end of the tubing. Siphon the beer and use the filler to put beer in the bottles. Fill the bottles to the top. When you remove the filler, the level of beer will be appropriate for capping. Cap each bottle and store in a dark place at room temperature. Chill the beer when you are ready to drink it.

This beer will taste best after **3 weeks** or more of storage.

### STEP 12: ENJOY