

the best of
Brew
YOUR OWN

MUNICH DUNKEL



Please note all file contents are Copyright © Battenkill Communications, Inc. All Rights Reserved.
This file is for the buyer's personal use only. It's unlawful to share or distribute this file to others in any way
including e-mailing it, posting it online, or sharing printed copies with others.

Munich Dunkel

by Jamil Zainasheff

MUNICH DUNKEL by the numbers

OG:1.048–1.056 (11.9–13.8 °P)
FG:1.010–1.016 (2.6–4 °P)
SRM:14–28
IBU:18–28
ABV:4.5–5.6%



I love technology, but there are times when going “old school” is just better. I could write these columns using the latest computer software, but I like to write them with pencil and paper while enjoying a pint in some wonderful spot. There is something about writing a little slower and sipping a pint, doing it old school, which makes the article better, right? At least it makes the process of writing more enjoyable.

The funny thing is, there are some beer styles that feel old school, regardless of how they are produced. Munich dunkel is one of those beer styles. It isn't light, fizzy, and near colorless. It is dark with gemstone highlights and rich with bready malt flavors. When I drink a fine Munich dunkel, I get the feeling, right or wrong, that the brewery must have been producing this style of beer for many years, if not many centuries.

Munich dunkel is the maltiest style in the Beer Judge Certification Program (BJCP) Dark Lager category. It is a beer full of toasted bread and other malt flavors and aromas from the heavy use of melanoidin-rich Munich malt. Most good examples are balanced nearly even, leaning a little to the sweet side, which hides the restrained hop bitterness. However, it is never overly sweet, heavy, or as intensely malty as bock-style beers. While schwarzbier will often have a slight roast note, Munich dunkel should never be roasty. Munich dunkel is also lighter in color than schwarzbier, ranging from deep copper to dark brown.

Hop character in this style is restrained. A touch of hop flavor or aroma is acceptable, but it should be no more than a subtle complement to the overall beer.

I've seen some excessively creative recipes for Munich dunkel, including everything from molasses and honey to roasted barley and wheat malt. Then there are other

recipes that use half Munich malt, half Pilsner malt and a substantial amount of CaraMunich®. The CaraMunich® adds a caramel sweetness that some people may enjoy, but I find it completely out of place in this style. Even moderate amounts of CaraMunich® result in a beer more like a bock than a Munich dunkel. The best Munich dunkel that I've had was made from a simple recipe. Munich dunkel is a beer rich in malty flavors, but it does not require a complex recipe.

The key to brewing Munich dunkel is using a very high percentage of Munich malt. Munich malt provides all of the rich malty flavors and aromas that the beer needs. Some of the best commercial examples are made entirely from Munich malt and a dash of Weyermann Carafa® Special for coloring. The question many all-grain brewers have is what color Munich malt? Maltsters produce varying colors of Munich malt, from a low of 6 °L to a high of 20 °L or more. Generally, the darker the Munich malt the more intense the rich melanoidin flavors and aromas. I've heard some brewers report good results using dark Munich malt, around 20 °L. However, I'm not sure if that is the best choice, as the flavors can be too intense when that is the bulk of the grist. It is not good to use too light a Munich malt either. I prefer Munich malt in the 8 to 12 °L range, which gives plenty of melanoidin rich character, but not so much that it becomes overwhelming. Another factor in choosing Munich malt is the source. When brewing German-style beers, I prefer using malts from German maltsters. While there are excellent products made elsewhere, there is something comforting about using German malt for a German beer style. When purchasing European malts, be aware that the color listed on the bag is often in degrees EBC, which is roughly twice the Lovibond scale.

By itself most Munich malt results

Continued on page 3

Old School Dunkel (5 gallons/19 L, all-grain)

OG = 1.054 (13.4 °P)

FG = 1.014 (3.6 °P)

IBU = 23 SRM = 20 ABV = 5.3%

Ingredients

11.0 lb. (5 kg) Durst or Weyermann
Munich Malt (8 °L)

5.0 oz. (142 g) Weyermann
Carafa® Special II (huskless)
(430 °L)

4 AAU Hallertauer pellet hops
(1.0 oz./28 g at 4% alpha acids)
(60 min.)

2 AAU Hallertauer pellet hops
(0.50 oz./14 g at 4% alpha acids)
(20 min.)

White Labs WLP833 (German Bock
Lager), Wyeast 2308 (Munich
Lager) or Fermentis Saflager S-23
yeast

Step by Step

Mill the grains and dough-in targeting a mash of around 1.5 quarts of water to 1 pound of grain (a liquor-to-grist ratio of about 3:1 by weight) and a temperature of 154 °F (68 °C). Hold the mash at 154 °F (68 °C) until enzymatic conversion is complete. Infuse the mash with near boiling water while stirring or with a recirculating mash system raise the temperature to mash out at 168 °F (76 °C). Sparge slowly with 170 °F (77 °C) water, collecting wort until the pre-boil kettle volume is around 5.9 gallons (22.3 L) and the gravity is 1.046 (11.44 °P).

Once the wort is boiling, add the bittering hops. The total wort boil time is 1 hour after adding the bittering hops. Add the flavor hops with 20 minutes left in the boil. Add Irish moss or other kettle finings with 15 minutes left in the boil. Chill the wort rapidly to 50 °F (10 °C), let the break material settle, rack to the fermenter, pitch the yeast and aerate. Ferment around 50 °F (10 °C) until the yeast drops clear. With healthy yeast, fermentation should be complete in two

weeks or less. If desired, perform a diacetyl rest during the last 1/3 of fermentation. Rack to a keg and force carbonate or rack to a bottling bucket, add priming sugar and bottle. Target a carbonation level of 2 to 2.5 volumes. Cold condition for a month or more at near freezing temperatures. Serve at 43 to 46 °F (6 to 8 °C).

Old School Dunkel (5 gallons/19 L, extract with grains)

OG = 1.053 (13.3 °P)

FG = 1.014 (3.5 °P)

IBU = 23 SRM = 19 ABV = 5.3%

Ingredients

7.5 lb. (3.4 kg) Weyermann 100%
Munich liquid malt extract

5.0 oz. (142 g) Weyermann
Carafa® Special II (huskless)
430 °L

4 AAU Hallertauer pellet hops
(1.0 oz./28 g at 4% alpha acids)
(60 min.)

2 AAU Hallertauer pellet hops
(0.50 oz./14 g at 4% alpha acids)
(20 min.)

White Labs WLP833 (German Bock
Lager), Wyeast 2308 (Munich
Lager) or Fermentis Saflager S-23
yeast.

Step by Step

To make an all-extract version, substitute the Weyermann Carafa® Special with 2.5 oz. (71g) by weight of SINAMAR® extract.

Mill or coarsely crack the specialty malts. Mix them well and place loosely in a grain bag. Steep the bag in 1/2 gallon (~2 liters) of 170 °F (77 °C) water for about 30 minutes. Lift the grain bag out of the steeping liquid and rinse with warm water. Allow the bags to drip into the kettle (don't squeeze) for a few minutes while you add the malt extract. Add enough water to the steeping liquor and malt extract to make a pre-boil volume of 5.9 gallons (22.3 L) and a gravity of 1.046

(11.35 °P). Stir thoroughly and bring to a boil. Once the wort is boiling, add the bittering hops. The total wort boil time is 1 hour after adding the bittering hops. Add the flavor hops with 20 minutes remaining and Irish moss or other kettle finings at 15 minutes. Chill the wort to 50 °F (10 °C), pitch the yeast and aerate thoroughly. Follow the remaining instructions for the all-grain version.

Simple Mash Option:

Use 11.0 lb (5 kg) Munich malt instead of the Munich malt extract. Crush the Munich malt and Carafa® Special and put it in a large mesh bag. Heat 1.5 quarts of water per pound of grain (~1.5L) to 163 °F (73 °C) and immerse the grain bag. Gently stir the grain inside the bag with a large spoon to make sure it is wet throughout and check the temperature. The grain and water (the mash temperature) should now be around 152–156 °F (67–69 °C). If not, add a boiling water to the pot to warm it up or cold water to cool it down. Let the mash sit for a half hour. Add more heat by adding boiling water to get the temperature back up in the desired range. Let mash sit for another half hour. At that time, the starches in the Munich malt should have converted to sugars. The liquid in the pot should taste sweet. Heat 2 gallons (8 L) of water in your boiling pot to 165 °F (74 °C). Lift the bag out of the first pot and let it drain for a minute before transferring the grain and bag into the water in the other pot. Let the bag sit in the pot for at least 10 minutes, agitating the bag to rewet the grain and rinse out the sugars. Lift the bag, let it drain and discard the grain. Add the wort from the first pot, adjusting the total volume of pre-boil wort by adding water. Mix well and take a gravity reading. If it's low, add DME to bring the gravity up and you're ready to boil.

in a beer color that is on the light end of the style. The darkest Munich malts produce the right color, but if you don't like the flavor profile of those darkest malts, you will still need to darken the color of your Munich dunkel without adding roasty flavors. The proper method is to use dehusked black malt. My preference is for Weyermann Carafa® Special, a huskless, roasted malt. The lack of a husk means far less bitter roasted flavors. Carafa® Special comes in several color levels: Carafa® Special I (340 °L), II (430 °L), and III (530 °L). I prefer the flavor of Carafa® Special II for this style, although the other colors will work fine in a pinch. Weyermann also makes Carafa®, which does have a husk and a lot more roasted character, so make sure you're getting the huskless variety, Carafa® Special. Weyermann also makes SINAMAR®, a liquid extract of Carafa® Special, made in accordance with the Reinheitsgebot. It is easy to use and provides as good a result as using the grain itself. Just add it to the boil kettle. One ounce by weight (28 g) of SINAMAR® in 5 gallons (19 L) of liquid adds 6 SRM of color and little in the way of roasted flavor. The only problem with SINAMAR® is that it is a bit harder to find at most homebrew shops than Carafa® Special.

Extract brewers must find Munich extract for this beer. Many Munich malt extracts are often a blend of Munich and Pilsner or two-row malt. As long as the flavor is rich and full of breadly malt notes a blended Munich extract may be acceptable, but it is worth the trouble to ask your local homebrew shop owner about ordering 100% Munich extract. What about steeping Munich malt? Unfortunately, steeping Munich malt adds unconverted starch to your wort, which can result in haze and other problems in your beer. Luckily, most Munich malts will self-convert if held at saccharification temperature. Perhaps this is a great opportunity to venture into creating your own wort from grains or partial mashing some Munich malt along with a 60/40

“ A touch of hop flavor or aroma is acceptable, but it should be no more than a subtle complement to the overall beer. ”

Munich extract. All it takes is paying attention to the water/grain ratio and holding the mash in the proper temperature range. Yes, messing with the pH of the mash can help, but it isn't critical for your first time and most tap water will work just fine. Other than that, the rest of the process is very similar to steeping grains.

Historically, a brewer would use a decoction mash when brewing a Munich dunkel. While a decoction mash might induce more Maillard reactions, I find that with all of the rich malt flavors provided by today's Munich malts, a single infusion mash works well for this style. Target a mash temperature range of 152 to 156 °F (67 to 69 °C) and keep in mind that Munich malt already makes a wort slightly less fermentable than wort made with pale Pilsner malt. Generally, the darker the Munich malt the less fermentable the wort. If you are making a lower gravity beer, use the higher end of this temperature range to leave the beer with a bit more body. If you are making a bigger beer, use the lower end of the range to avoid too full of a body, which can limit the drinkability.

You can ferment Munich dunkel with any number of German lager yeasts. My preference is White Labs WLP833 (German Bock) as it makes a beer most similar to my favorite commercial example, Ayinger Altbairisch Dunkel. Good alternatives to experiment with from Wyeast are 2308 (Munich) and 2206 (Bavarian Lager). Good alternatives from White

Labs include WLP838 (South German), WLP820 (Oktoberfest/Märzen) and WLP830 (German Lager Yeast). You could also try Fermentis Saflager S-23.

You will need around 375 billion clean, healthy cells to properly ferment 5 gallons (19 L) of this beer, which is double what you would normally use for an equivalent strength ale. For a simple, non-stirred starter, one package of liquid yeast in 2.3 gallons (8.7 L), or 2 packages in 3.7 quarts (3.5 L), will result in the right amount of yeast. If you're not making a starter, you'll need about 4 packages of liquid yeast. If you're using dry yeast, use approximately ¾ ounce (21 g) of fresh, properly rehydrated yeast.

When making lagers, I like to get the wort down to 44 °F (7 °C), oxygenate and then pitch the yeast. I let the beer slowly warm over the first 36 hours to 50 °F (10 °C) for the remainder of fermentation. This results in a clean lager, with very little diacetyl. This is similar to a Narziss fermentation, where the first two-thirds of the fermentation is done cold and the final third is done warmer. The idea is to reduce the diacetyl precursor alpha-acetolactate, which is created during the early phase of fermentation. With a warmer environment, more precursors are formed and more diacetyl is created from those precursors. Yeast will usually convert some of the diacetyl to flavorless compounds, but the lower the initial amount of diacetyl, the less there will be in the final beer. If you start or ferment your lager warmer, you'll need to do a diacetyl rest during the last ½ of fermentation. To perform a diacetyl rest, warm your beer up about 10 °F (6 °C) until fermentation is complete and the yeast have had a chance to eliminate the diacetyl. In any case, don't rush things. Good lagers take time and they ferment slower than ales, especially when fermented cold. Once the beer has finished fermenting, a period of lagering for a month or more at near freezing temperatures can improve the beer.

Give this style a try — maybe you'll feel a little old school yourself! 

**DON'T MISS
AN ISSUE OF**

THE HOW-TO HOMEBREW BEER MAGAZINE
Brew
YOUR OWN



Each issue is packed with homebrewing techniques, recipes, DIY projects, tips, and more!

For more information on *Brew Your Own* digital subscriptions check out:

byo.com/digitaledition