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IPA STYLE GUIDE

TABLE OF CONTENTS

6 English IPA

The original India pale ale, English IPA is on the lower end of the IPA hop spectrum so that the bitterness does not overpower the fermentation and malt character. We share 12 English IPA recipes for you to brew.

14 American IPA

A bold hop character should always be up front in American IPA, as should a strong bitterness. The West Coast variant takes that hoppiness further and the hop character is front and center as the star. Enjoy these 36 American IPA recipes.

38 Double IPA

For the homebrewer who has never said no to adding more hops, Double IPA (or imperial IPA, as it is sometimes referred) is a beer bigger in alcohol strength, hop bittering, and hop character than standard India pale ale. Gather up all your hops for these 24 double IPA recipes.

54 Specialty IPA

As the IPA revolution exploded, more and more hopped-up styles evolved. These styles share a trend of being hop-forward, firmly bitter beers with relatively dry finishes. Here, we share 28 hoppy recipes for Belgian IPA, black IPA, *Brettanomyces* IPA, red IPA, rye IPA, wheat IPA, and white IPA.





RECIPE STANDARDIZATION

EXTRACT EFFICIENCY: 65%
(i.e. — 1 pound of 2-row malt, which has a potential extract value of 1.037 in one US gallon of water, would yield a wort of 1.024.)

EXTRACT VALUES FOR MALT EXTRACT:
liquid malt extract (LME) = 1.033–1.037
dried malt extract (DME) = 1.045

POTENTIAL EXTRACT FOR GRAINS:
2-row base malts = 1.037–1.038
wheat malt = 1.037
6-row base malts = 1.035
Munich malt = 1.035
Vienna malt = 1.035
crystal malts = 1.033–1.035
chocolate malts = 1.034
dark roasted grains = 1.024–1.026
flaked maize and rice = 1.037–1.038

HOPS:
We calculate IBUs based on 25% hop utilization for a one-hour boil of hop pellets at specific gravities less than 1.050. For post-boil hop stands, we calculate IBUs based on 10% hop utilization for 30-minute hop stands at specific gravities less than 1.050.

Gallons:
We use US gallons whenever gallons are mentioned.

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RECIPE INDEX

ENGLISH IPA

1868 East IPA.....	9
Bollocks IPA.....	9
Burton-on-Housatonic IPA.....	9
Burton's Best IPA.....	10
Haldane's Select IPA.....	10
HammerSmith Ales English IPA.....	10
Modern British IPA.....	11
My Classic IPA.....	11
Samuel Smith Old Brewery's India Ale clone.....	12
Shawn's Real IPA.....	12
Very Small Modern IPA.....	13
Well-Traveled IPA.....	13

AMERICAN IPA

AleSmith Brewing Co.'s AleSmith IPA clone.....	17
Anchor Brewing Co.'s Liberty Ale clone.....	17
Bacchus Wai-iti IPA clone.....	18
Bale Breaker Brewing Co.'s Top Cutter IPA clone.....	18
Ballantine Brewing Co.'s Ballantine IPA clone.....	19
Barley's Brewing Co.'s Blurry Bike IPA clone.....	19
Bear Republic Brewing Co.'s Racer 5 clone.....	19
Bell's Brewing Co.'s Two Hearted Ale clone.....	20
Boulevard Brewing Co.'s Pop Up Session IPA clone.....	20
Brewdog's Punk IPA clone.....	21
Citra SMaSH IPA.....	21
Dogfish Head Brewing Co.'s 60-Minute IPA clone.....	22
El Dorado IPA.....	22
Fort George Brewery's Suicide Squeeze IPA clone.....	23
Harpoon Brewery's Harpoon IPA clone.....	23
Hop Skip & a Jump American IPA.....	24
Hoppiness is an IPA.....	24
Hoppy Days IPAYYYYEE.....	25
inSANTIAM IPA.....	25
Klaus Brau's Kitchen Sink IPA.....	26
Lagunitas Brewing Co.'s Lagunitas IPA clone.....	26
Lawson's Finest Liquids' Super Session IPA clone.....	27
Mayflower Brewing Co.'s Mayflower IPA clone.....	27
New Belgium Brewing Co.'s Ranger IPA clone.....	28
North Coast Brewing Co.'s Acme California IPA clone.....	28
Peachtree IPA.....	29
Portland U-Brew and Pub Fresh Hop IPA.....	29
Riverwards IPA.....	30
Roswell IPA.....	31
Route 66 IPA.....	31
Samuel Adams Latitude 48 IPA clone.....	32
Sierra Nevada Brewing Co.'s Celebration clone.....	32
Simtra Mosalaxy IPA.....	33
Stefan Shoemaker's Gluten-Free American IPA.....	34
Stone Brewing Co.'s Stone IPA clone.....	34
The DaVinci Conundrum.....	34
West Coast Style IPA.....	36

DOUBLE IPA

The Alchemist's Heady Topper clone.....	41
The Alchemist's Holey Moley clone.....	41
Bend Brewing Co.'s Hophead Imperial IPA clone.....	42
Brewdog's Hardcore IPA clone.....	42
Dick's Brewing Co.'s Bottleworks IPA clone.....	43
Dogfish Head Craft Brewery's 90-Minute IPA clone.....	43
Double Trouble-Double IPA.....	43
Hair of the Dog Brewing Co.'s Blue Dot Double IPA clone.....	44
Hill Farmstead Brewery's Abner clone.....	44

Hop Hammer.....	45
Imperial Stormtrooper IPA.....	46
Lawson's Finest Liquids' Double Sunshine IPA clone.....	46
Left Hand Brewing Co.'s Twin Sisters clone.....	47
Lompoc Brewing Co.'s C-Sons Greetings Ale clone.....	47
Matt Gauzza's Imperial IPA.....	48
Mike's McDole's IPA.....	48
Pacific Coast Brewing Co.'s Megalodon Imperial IPA clone.....	49
Rogue Ale's Imperial IPA (1 ² PA) clone.....	49
Russian River Brewing Co.'s Pliny the Elder clone.....	49
Sierra Nevada Brewing Co.'s Torpedo Extra IPA clone.....	50
Stone Brewing Co.'s Ruination IPA clone.....	50
Surly Brewing Co.'s Furious IPA clone.....	51
The Tri-Centennial DIPA.....	52
Three Floyds Brewing Co.'s Dreadnaught Clone.....	52

SPECIALTY IPA

Belgian IPA

Ithaca Beer Co.'s IPAbbey clone.....	57
Tragen Babel.....	57

Black IPA

Barley Brown's Brewing Co.'s Turmoil Cascadian Dark Ale clone.....	58
Bombay After Dark.....	58
Double Black IPA.....	59
Fresh Hop Black IPA.....	60
Hopworks Urban Brewery Secession CDA clone.....	60
Lawson's Finest Liquids' Toast clone.....	61
The Alchemist, Ninkasi, and Stone Brewing Co.'s More Brown Than Black IPA clone.....	62
Oakshire Brewing Co.'s O'Dark:30 clone.....	62
Samuel Adams Dark Depths Baltic IPA clone.....	63
Schwarzchild Black IPA.....	64
Smuttynose Brewing Co.'s Short Batch #12 "Noonan" clone.....	64
Widmer Brewing Co.'s W-10 Pitch Black IPA clone.....	65

Brett IPA

Cairn 100% Brett IPA.....	65
Modern Times Southern Lands IPA clone.....	66

Red IPA

Amarillo Sunset Red IPA.....	66
Brunhilde India Red Ale.....	67
Leaf Peeper Imperial Red.....	67
Tröegs Brewing Co.'s Nugget Nectar Ale clone.....	68

Rye IPA

Bear Republic Brewing Co.'s Hop Rod Rye clone.....	68
Black Rye IPA.....	69
DC's Rye IPA.....	69
Sierra Nevada Brewing Co.'s Ruthless Rye IPA clone.....	70
Smooth Rye'd.....	70

Wheat IPA

Sumpin' Like Little Sumpin' Sumpin'.....	71
Wheat IPA.....	72

White IPA

At Wits' End IPA.....	72
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ENGLISH IPA

by JAMIL ZAINASHEFF

India pale ale was first created when an enterprising brewer crafted a beer to better survive the long sea voyage from England to India in the late 18th century. It is said that the beer had more hop bitterness than other beers of its time to help preserve the beer against spoilage. Today, English commercial examples of the style have become weaker, in both hops and alcohol. Many beers labeled as IPA in England are much closer to bitters than the India pale ales of old.

Quite a few brewers still want to recreate a historic English IPA. Some brewers have even tried placing kegs of IPA on ships to simulate the effect of transit to India on the beer. While many do a brilliant job, there are still plenty of poorly fermented, out of balance examples. The worst thing about some of these misguided attempts is the brewer loading an English IPA up with heavy, sweet malt character. While English IPA should always have a noticeable, supporting malt character, it should not be sweet, heavy or overly full. It should be more about biscuit, toast and caramel than sweetness. You want a reasonably crisp finish, one that is more dry than sweet.

Start with British pale ale malt as the base. It provides that background biscuit-like malt character that is a key component in fine British beers.

British pale ale malt is kilned a bit darker (2.5 to 3.5 °L) than the average American two-row or pale malt (1.5 to 2.5 °L) and this higher level of kilning brings out the malt's biscuity flavors.

Extract brewers should try to source an extract made from British pale ale malt. If you end up using North American two-row extract you will need to compensate with additional specialty malts such as Munich, biscuit or Victory®, but use restraint. For a 5-gallon (19-L) batch, add about 5 to 10% of the total base malt.

All-grain brewers should use an infusion mash. A temperature in the range of 149 to 154 °F (65 to 68 °C) works well. Use a lower temperature when using lower attenuating yeasts or higher starting gravities. Use a higher mash temperature when using the higher attenuating yeasts or lower starting gravity beers. A great starting point is 152 °F (67 °C) if you are unsure.

I like the clean, light malt character of American-style IPAs brewed only with pale malt, but that does not work well for English IPA. English IPA requires a touch more malt complexity and a slight touch of caramel character. English IPA should not have as much caramel character as English bitters, but a small dose of crystal malt adds caramel notes, body and helps fill out the malt flavors. The type of crystal malt also makes a difference. Darker color crystal malts add richer



Photo by istockphoto.com

colors, as well as some dark caramel, toasty, roasted and raisin flavors. Lighter color crystal malts add sweeter caramel notes. The maximum crystal malt this style can handle without getting heavy and cloying is in the range of 8 to 10% with a color range of 10 to 150 °L. However, the darker the crystal, the less you should use. An IPA with 10% 150 °L crystal malt may not be cloying, but it can be too intense a flavor for this style. On the flip side, an IPA with all light color crystal malt will tend to be sweet and lack depth of character.

If you are looking for more complexity or increased head retention, you can add other malts as well. Wheat malt, Victory®, biscuit and more are common additions in many recipes, but restraint is important so that the beer does not become saturated with non-fermentable dextrans and cloying flavors. In general, keep the total of all specialty grain additions to less than 15% of an all-grain grist.

You should think of all of the IPA styles as “hoppy,” but there is a vast difference in the level of hops between the IPA substyles. On the lower end is English IPA, which, while hoppy, does not have quite as bold a hop character as is found in American IPA and should never be overwhelming, resin-like, or shockingly bitter. The bittering and hop character should not completely overpower the fermentation and malt character. Bold, but not overdone, is the key here. The trick is to get the right level of hop aroma and flavor, using traditional English hops, without going overboard.

English IPA is best brewed with English hops, such as East Kent Goldings, Fuggles, Target, Northdown or Challenger. The bittering level for English IPA is in the range of 40 to 60 IBU. Target a firm hop bitterness, without

overwhelming the malt background. Keep in mind that there are many factors at play in the final impression of bitterness for the drinker. The starting and final gravities, water sulfate levels, the character malts selected, type of

When brewing with low sulfate water you are forced to add a large amount of hop alpha acids to develop enough bittering. However, adding large quantities of hops to get a stronger bittering can result in a resin-like character. Cutting

“English IPA should be firmly bitter, but the bittering and hop character should not completely overpower the fermentation and malt character.”

base malt, yeast strain, pitching rate, and even the yeast cell size have an impact on the perceived bittering. For most English IPAs, a bitterness-to-starting-gravity ratio (IBU divided by OG) between 0.7 and 1.0 gives the proper result. As a general rule of thumb in determining late hop amounts, include at least double the amount of bittering hops. Keep in mind this is just a generalization, since using very low or high alpha acid hops makes the equation faulty. For an English IPA, include two or more late hop additions using two different hop varieties, totaling around 1 to 3 oz. (28 to 85 g) for a 5-gallon (19-L) batch at 20 minutes or later. You can use more than two varieties, but do not go crazy. A couple of varieties creates an interesting complexity; 10 different hop varieties creates an indistinct “hoppiness.” Dry hopping and the use of a hop jack are also good ways to develop hop character for this style. If you do dry hop this beer, you should reduce the late hop additions to keep the hop flavor and aroma balanced with the malt character.

The sulfate content of brewing water affects the character of hop bitterness to a significant degree.

back on the hops and adding a moderate amount of gypsum (or “Burtonizing” the water), results in a sharper, more crisp hop bitterness without the resin character. While the Beer Judge Certification Program (BJCP) style guide mentions high sulfur levels and sulfur character in examples of the style, an apparent sulfur character is a flaw. You shouldn’t be trying to mimic the water of Burton-on-Trent. It is easy to overdo mineral additions, resulting in a chalky, metallic or harsh character. Most water only requires a small amount of gypsum. Start low, targeting half the amount of total sulfate typical of Burton water. If you do not know the sulfate content of your water, start with one gram of gypsum per gallon. Generally, you should need no more than three grams per gallon. It is usually better to add less than to add more and it only takes a small amount to accentuate hop bitterness. You can add gypsum to the mash or, if you are brewing with extract, you can add it directly to your boil kettle water before you heat it.

“English” yeast strains provide a variety of interesting esters and leave some residual sweet-

ness to balance a bitter beer. Many English yeasts tend to attenuate on the lower side (< 70%), but for an English IPA you want to choose one of the more attenuative English yeasts. While you do want some balancing malt sweetness, using a low attenuating

yeast in a bigger beer can result in a beer that is too heavy and sweet. My favorites for this style are White Labs WLP013 (London Ale) and Wyeast 1028 (London Ale). They both provide a wonderful ester profile without being excessively fruity, and they attenuate a

little more than most English yeasts. If you like to experiment, try to select English yeasts that attenuate in the mid 70s percent or higher. If you prefer dry yeast, Danstar Nottingham should produce good results.

At temperatures lower than 65 °F (18 °C), these yeasts produce a relatively low level of esters and at higher temperatures (above 70 °F/21 °C) they produce abundant fruity esters and fusel alcohol notes. I start fermentation in the middle of this range (68 °F/20 °C), letting the temperature slowly rise a few degrees over a couple days. This creates the expected level of esters, helps the yeast attenuate fully, and keeps the amount of diacetyl in the finished beer to a minimum. You can lower the starting gravity, lower the mash temperature, or replace a portion of the base malt with simple sugar to aid in drying out the final beer.

Serving English IPA at cellar temperature, around 52 to 55 °F (11 to 13 °C), allows the character of the beer to come out and can improve drinkability. Colder temperatures prevent the drinker from picking up the interesting fermentation and malt flavors and aromas of this style, so do not go below 50 °F (10 °C).

Target a carbonation level around 2 to 2.5 volumes of CO₂ for bottled, 1.5 volumes for kegged, and 1 volume of CO₂ for cask conditioned beer.

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1868 East IPA

(5 gallons/19 L, all-grain)
OG = 1.067 FG = 1.015
IBU = 100+ SRM = 6 ABV = 7.1%

Ingredients:

14 lbs. (6.4 kg) Maris Otter pale ale malt
51 AAU UK Goldings hops (90 min.)
(10.25 oz./0.29 kg at 5% alpha acids)
3 oz. (85 g) UK Goldings hops (dry hop)
White Labs WLP017 (Whitbread Ale) or
Wyeast 1099 (Whitbread Ale) or
Safale S-04 yeast
⅓ cup corn sugar (if priming)

Step by Step

Mash grains with hot water (1.2 qts./lb.) at 150–152°F (66–67 °C) for 1 hour. Run off and sparge to collect about 6 gallons (23 L) of wort. Bring to a boil and add the bittering hops, boil 90 minutes. Cool to 65–70 °F (18–21 °C) and pitch with yeast, preferably two packs prepared previously as two 1-qt. (1-L) starters. Ferment 5 days, rack to secondary and add the dry hops in a sanitized weighted muslin bag. After 1–2 weeks, rack to keg or bottle and prime or carbonate in the usual way.

*This is a lot of hops, which will likely result in loss of wort in the residue when racked. I have kept to the use of Goldings for this so as to follow the original as closely as possible. However, you might find it more practical to replace these with 29 AAU Progress hops (3.6 oz./102 g at 8% alpha acids).

Extract Version:

Simply replace the pale malt in the recipe with 9.3 lb. (4.2 kg.) Maris Otter liquid malt extract. Boil for only 60 minutes – the shorter boil will not materially affect the actual IBU since the figure quoted above is merely a calculation and is probably higher than the actual solubility of iso-alpha acids. As above, you may find it more practical to replace the Goldings bittering hops with 29 AAU Progress hops (3.6 oz./102 g, at 8% alpha acids).

Bollocks IPA

5 gallons/19 L, all-grain)
OG = 1.061 FG = 1.011
IBU = 51 SRM = 11 ABV = 6.6%

Ingredients

10.5 lbs. (4.8 kg) British pale ale malt
8 oz. (0.23 kg) biscuit malt
8 oz. (0.23 kg) crystal malt (40 °L)
8 oz. (0.23 kg) crystal malt (80 °L)

8 oz. (0.23 kg) white wheat malt
9.75 AAU UK Admiral hop pellets (60 min.)
(0.75 oz./21 g at 13% alpha acids)
6.5 AAU UK Fuggle hop pellets (10 min.)
(1.25 oz./35 g at 5.2% alpha acids)
1.5 oz. (43 g) East Kent Goldings hop pellets
(0 min.)
¼ tsp. Super Moss HB (10 min.)
(rehydrated)
¼ tsp. yeast nutrient (5 min.)
1 packet (11.5 g) Safale S-04
⅓ cup corn sugar (if priming)

Step by Step

Mash at 151 °F (66 °C) for 60 minutes with 4 gallons (15 L) of water at 1.3 quarts of water to 1 lb. of grain ratio. Add 3.75 gallons (14 L) of close to boiling water to mash. Stir the mash to equalize temperature. Perform vorlauf, then collect wort into pre-boil kettle until the volume is around 6.25 gallons (23.7 L). Boil wort for 60 minutes, adding hops, finings and yeast nutrients at the times indicated. Chill wort to 63 °F (17 °C) and aerate. Add rehydrated S-04 yeast packet to wort and ferment at 65 °F (18 °C) for 9 days or until gravity is 1.011. Carbonate to 2.4 volumes of CO₂.

BOLLOCKS IPA

(5 gallons/19 L, extract with grains)
OG = 1.061 FG = 1.011
IBU = 51 SRM = 11 ABV = 6.6%

Ingredients

6.6 lbs. (3 kg) British pale liquid malt extract
8 oz. (0.23 kg) light dried malt extract
8 oz. (0.23 kg) biscuit malt
8 oz. (0.23 kg) crystal malt (40 °L)
8 oz. (0.23 kg) crystal malt (80 °L)
8 oz. (0.23 kg) white wheat malt
9.75 AAU UK Admiral hop pellets (60 min.)
(0.75 oz./21 g at 13% alpha acids)
6.5 AAU UK Fuggle hop pellets (10 min.)
(1.25 oz./35 g at 5.2% alpha acids)
1.5 oz. (43 g) East Kent Goldings hop pellets
(0 min.)
¼ tsp. Super Moss HB (10 min.)
¼ tsp. yeast nutrient (5 min.)
1 packet (11.5 g) Safale S-04 yeast
⅓ cup corn sugar (if priming)

Step by Step

Steep the crushed grains in a muslin bag at 151 °F (66 °C) for 30 minutes with 5.25 gallons (20 L) of water. Wash grains with 1 gallon (3.8 L) of hot water, add all the malt extract to the wort. Boil wort for 60 minutes, adding hops, finings and yeast nutrients at the times indicated. Chill wort to 63 °F (17 °C) and aerate. Add rehydrated S-04 yeast packet to wort and ferment at 65 °F (18 °C) for 9 days or until gravity is 1.011. Carbonate to 2.4 volumes of CO₂.

Burton-on-Housatonic IPA

(5 gallons/19 L, all-grain)
OG = 1.070 FG = 1.014
IBU = 60 SRM = 9 ABV = 8%

Ingredients

14 lbs. 2 oz. (6.4 kg) Maris Otter 2-row pale ale malt
0.5 lb. (0.23 kg) crystal malt (40 °L)
16.1 AAU Northern Brewer hops (90 min.)
(2.3 oz./65 g at 7% alpha acids)
5 AAU East Kent Goldings hops (10 min.)
(1 oz./28 g at 5% alpha acids)
1 oz. (28 g) East Kent Goldings hops (0 min.)
1 oz. (28 g) East Kent Goldings hops
(dry hop)
White Labs WLP023 (Burton Ale) or
Wyeast 1275 (Thames Valley Ale) yeast
1 cup corn sugar (if priming)

Step by Step

Use a single-step infusion mash at 153–155 °F (67–68 °C) for 1–1.5 hours. Sparge one hour, with water no hotter than 175 °F (79 °C), until run-off reaches a specific gravity 1.010–1.012. Boil 90 minutes, with bittering hops added after the first foamy head subsides. Adjust wort volume with cold water, and cool to about 70 °F (21 °C). Pitch with yeast starter, and allow to ferment. By 5–7 days, final gravity should have been reached; rack into a secondary fermenter. If you will be bottling, add dry hops at this stage. One to two weeks later, rack again, prime with corn sugar, and rack into keg or bottles. If you keg your beer, add dry hops at this stage. The beer should be ready to drink after conditioning for a week or so. It will keep for months if kept cool, and you have been careful to avoid aeration during racking.

BURTON-ON-HOUSATONIC IPA

(5 gallons/19 L, partial mash)
OG = 1.070 FG = 1.014
IBU = 60 SRM = 12 ABV = 8%

Ingredients

1.5 lbs. (6.4 kg) Maris Otter pale ale malt
0.5 lbs. (0.23 g) crystal malt (40 °L)
1 lb. 14 oz. (0.85 kg) Muntions light dried malt extract
6.6 lb. (3 kg) Muntions Maris Otter liquid malt extract
16.1 AAU Northern Brewer hops (90 min.)
(2.3 oz./65 g at 7% alpha acids)
5 AAU East Kent Goldings hops (10 min.)
(1 oz./28 g at 5% alpha acids)
1 oz. (28 g) East Kent Goldings hops (0 min.)
1 oz. (28 g) East Kent Goldings hops



(dry hop)

White Labs WLP023 (Burton Ale) or
Wyeast 1275 (Thames Valley Ale) yeast
1 cup corn sugar (if priming)

Step by Step

In a large kitchen pot, heat 3 qts. (2.8 L) of water to 165 °F (74 °C). Place the crushed grains in a steeping bag and steep in this water for 60 minutes. Hold steeping temperature around 154 °F (68 °C). Heat 1.5 gallons (5.7 L) of water to a boil in your brewpot. Add “grain tea” from steep to your brewpot. Hold grain bag over brewpot with a large colander and rinse grain bag with 1.5 qts. (~1.5 L) of hot water (at 170 °F/77 °C). Add dried malt extract and bring to a boil. Boil 60 minutes, adding hops at times indicated. Stir in liquid malt extract at end of boil and let steep for 15 minutes with the brewpot lid closed. (If the liquid extract is hopped, it will give you more bitterness.) Cool wort, top up to 5 gallons (19 L), aerate and pitch yeast. Follow the instructions for fermentation and dry hopping in the all-grain recipe.

Burton's Best IPA

(5 gallons/19 L, all-grain)
OG = 1.066 FG = 1.012
IBU = 60 SRM = 8 ABV = 7.3%

Ingredients

11 lbs. (5 kg) British 2-row pale ale malt
0.5 lb. (0.23 kg) crystal malt (40 °L)
1 lb. (0.45 kg) cane sugar (added to boil)
10 AAU Kent Golding hops (60 min.)
(2 oz./57 g at 5% alpha acids)
5 AAU Kent Golding hops (30 min.)
(1 oz./28 g at 5% alpha acids)
6.5 AAU Kent Golding hops (15 min.)
(1.3 oz./37 g at 5% alpha acids)
5 AAU Kent Golding hops (5 min.)
(1 oz./28 g at 5% alpha acids)
1 oz. (28 g) Kent Golding hops (0 min.)
0.5 oz. (14 g) Kent Golding whole leaf hops
(dry hop)
Wyeast 1098 (British Ale) or
Wyeast 1968 (London ESB Ale)
¾ cup corn sugar (if priming)

Step by Step

Mash grains at room temperature into 3.5 gal. (13 L) of water at 161°F (72 °C) to reach a conversion temperature of 150 °F (66 °C) for 1 hour. Sparge to collect 6 gal. (23 L) of wort. As the wort approaches boil, add sugar and stir to dissolve. Total boil time is 90 minutes. Boil for 30 minutes before making the first hop addition. Add hops as directed at 60, 30, 15, and 5 minutes before the end of the boil. Add the final hop addition to the wort just prior to cooling. Cool

and aerate the hopped wort to 65 °F (18 °C) and add yeast. Ferment at 60–65 °F (15–18 °C) until finished. Rack into carboy containing 0.5 oz. (14 g) of whole leaf hops. Allow to age for a month at 50–55 °F (10–13 °C) prior to packaging.

BURTON'S BEST IPA

(5 gallons/19 L, partial mash)
OG = 1.066 FG = 1.012
IBU = 60 SRM = 9 ABV = 7.3%

Ingredients

4 lbs. (1.8 kg) British 2-row pale ale malt
0.5 lb. (0.23 kg) crystal malt (40 °L)
5 lbs. (2.3 kg) golden liquid malt extract
1 lb. (0.45 kg) cane sugar (added to boil)
10 AAU Kent Golding hops (60 min.)
(2 oz./57 g at 5% alpha acids)
5 AAU Kent Golding hops (30 min.)
(1 oz./28 g at 5% alpha acids)
6.5 AAU Kent Golding hops (15 min.)
(1.3 oz./37 g at 5% alpha acids)
5 AAU Kent Golding hops (5 min.)
(1 oz./28 g at 5% alpha acids)
1 oz. (28 g) Kent Golding hops (0 min.)
0.5 oz. (14 g) Kent Golding whole leaf hops
(dry hop)
Wyeast 1098 (British Ale) or
Wyeast 1968 (London ESB Ale) yeast
¾ cup corn sugar (if priming)

Step by Step

Mash grains at room temperature into 1.5 gal. (5.7 L) of water at 161 °F (72 °C) to reach a conversion temperature of 150 °F (66 °C) for 1 hour. Sparge to collect 4 gal. (15 L) of wort. Add 2 gal. (7.6 L) of water to make a total volume of 6 gal. (23 L). As the wort approaches boil, add malt extract and sugar while stirring to dissolve. Boil for 30 minutes before making the first hop addition. Add hops as directed at 60, 30, 15, and 5 minutes before the end of the boil. Add the final hop addition to the wort just prior to cooling. Cool and aerate the hopped wort to 65 °F (18 °C) and add yeast. Ferment at 60–65 °F (15–18 °C) until finished. Rack into carboy containing 0.5 oz. (14 g) of whole leaf hops. Allow to age for a month at 50–55 °F (10–13 °C) prior to packaging.

Haldane's Select IPA

(5 gallons/19 L, all-grain)
OG = 1.062 FG = 1.011
IBU = 51 SRM = 12 ABV = 6.9%

Ingredients

8.25 lbs. (3.7 kg) British pale ale malt (3 °L)
(preferably Maris Otter)
5 oz. (150 g) crystal malt (60 °L)
3 oz. (85 g) biscuit malt

0.33 oz. (9 g) chocolate malt
2 lbs. (0.91 kg) cane sugar (15 min.)
12.5 AAU Kent Goldings hops (60 min.)
(2.5 oz./71 g at 5% alpha acids)
3.4 AAU UK Fuggles hops (15 min.)
(0.75 oz./21 g at 4.5% alpha acids)
1.5 oz. (43 g) UK Fuggles hops (dry hop)
Wyeast 1028 (London Ale) or White Labs
WLP026 (Premium Bitter) yeast
¾ cup corn sugar (if priming)

Step by Step

Mash at 153 °F (67 °C) in 11 qts. (10.4 L) of brewing liquor with 150–200 ppm calcium ions and less than 100 ppm bicarbonate. Collect about 4.5 gallons (17 L) of wort, add 2 gallons (7.6 L) of water and boil wort for 90 minutes. Add hops at times indicated in ingredient list. Add cane sugar with 15 minutes left in the boil. Ferment at 70 °F (21 °C). Add dry hops in the secondary fermenter or in your keg.

HALDANE'S SELECT IPA

(5 gallons/19 L, extract with grains)
OG = 1.062 FG = 1.011
IBU = 51 SRM = 12 ABV = 6.9%

Ingredients

6 lbs. (2.7 kg) Maris Otter liquid malt extract
5 oz. (150 g) crystal malt (60 °L)
3 oz. (85 g) biscuit malt
0.33 oz. (9 g) chocolate malt
2 lbs. (0.91 kg) cane sugar (15 min.)
12.5 AAU Kent Goldings hops (60 min.)
(2.5 oz./71 g at 5% alpha acids)
3.4 AAU UK Fuggles hops (15 min.)
(0.75 oz./21 g at 4.5% alpha acids)
1.5 oz. (43 g) UK Fuggles hops (dry hop)
Wyeast 1028 (London Ale) or White Labs
WLP026 (Premium Bitter) yeast
¾ cup corn sugar (if priming)

Step by Step

Place the crushed grains in 1 gallon (4 L) brewing water at 160°F (71 °C). Steep for 20 minutes then wash the grains with 2 qts. (2 L) hot water. Top off to about 6.5 gallons (24.6 L) of wort and boil for 90 minutes. Add hops at times indicated in ingredient list. Add cane sugar with 15 minutes left in the boil. Ferment at 70 °F (21 °C). Add dry hops in the secondary fermenter or in your keg.

HammerSmith Ales English IPA

(5 gallons/19 L, all-grain)
OG = 1.058 FG = 1.010
IBU = 54 SRM = 11 ABV = 6.5%

Ingredients

10.5 lbs. (4.8 kg) British 2-row pale ale malt



14.4 oz. (0.41 kg) crystal malt (60 °L)
 6.4 oz. (0.18 kg) amber malt
 5.4 oz. (0.15 kg) torrified wheat
 10 AAU East Kent Golding hops (60 min.)
 (2 oz./56 g at 5% alpha acids)
 2.5 AAU East Kent Golding hops (30 min.)
 (0.5 oz./14 g at 5% alpha acids)
 7.5 AAU East Kent Golding hops (10 min.)
 (1.5 oz./42 g at 5% alpha acids)
 1.25 oz. (35 g) Chinook hops (dry hop)
 1 tsp. yeast nutrients (15 min.)
 ½ Whirfloc tablet (5 min.)
 Wyeast 1275 (Thames Valley Ale) or
 White Labs WLP023 (Burton Ale) yeast
 ⅔ cup corn sugar (if priming)

Step by Step

This is a single infusion mash. Target mash temperature is 152 °F (67 °C) mixing grains with 3.6 gallons (13.6 L) of strike water. Raise the mash temperature to 168 °F (76 °C) and begin lautering. Boil for 60 minutes, adding the bittering hops at times indicated in the ingredients list. Add the Whirfloc tablet and yeast nutrients when 15 minutes remain in the boil. After the boil is finished, chill the wort to 67 °F (19 °C) and transfer to a sanitized fermentation vessel. Ferment at 67 °F (19 °C). Add the final addition of hops and store the beer an additional week at 58 °F (14 °C). Your beer is now ready to rack into a keg or bottle with the priming sugar.

HAMMERSMITH ALES ENGLISH IPA

(5 gallons/19 L, partial mash)
 OG = 1.058 FG = 1.010
 IBU = 54 SRM = 11 ABV = 6.5%

Ingredients

6 lbs. (2.7 kg) Maris Otter liquid malt extract
 2 lbs. (4.8 kg) British 2-row pale ale malt
 14.4 oz. (0.41 kg) crystal malt (60 °L)
 6.4 oz. (0.18 kg) amber malt
 5.4 oz. (0.15 kg) torrified wheat
 10 AAU East Kent Golding hops (60 min.)
 (2 oz./56 g at 5% alpha acids)
 2.5 AAU East Kent Golding hops (30 min.)
 (0.5 oz./14 g at 5% alpha acids)
 7.5 AAU East Kent Golding hops (10 min.)
 (1.5 oz./42 g at 5% alpha acids)
 1.25 oz. (35 g) Chinook hops (dry hop)
 1 tsp. yeast nutrients (15 min.)
 ½ Whirfloc tablet (5 min.)
 Wyeast 1275 (Thames Valley Ale) or
 White Labs WLP023 (Burton Ale) yeast
 ⅔ cup corn sugar (if priming)

Step by Step

In a large brewing kettle, heat 5.5 qts. (5 L) of water to 165 °F (74 °C). Place the crushed grains in a steeping bag and steep in this water for 60 minutes. Hold the temperature

around 152 °F (67 °C). Heat 1.5 gallons (5.7 L) of water to a boil in your brew pot. Add "grain tea" from steep to your brewpot. Hold grain bag over brew pot with a large colander and rinse grain bag with 1.5 qts. (~1.5 L) of hot water at 170 °F (77 °C). Top off the brew pot to 6 gallons (23 L). Add liquid malt extract and bring to a boil. Boil for 60 minutes adding the hops at times indicated in the ingredients list. Add the Whirfloc tablet and yeast nutrients when 15 minutes remain in the boil. After the boil is finished, chill the wort to 67 °F (19 °C) and transfer to a sanitized fermentation vessel. Ferment at 67 °F (19 °C). Add the final addition of hops and store the beer an additional week at 58 °F (14 °C). Your beer is now ready to rack into a keg or bottle with the priming sugar.

Modern British IPA

(5 gallons/19 L, all-grain)
 OG = 1.056 FG = 1.012
 IBU = 45 SRM = 8 ABV = 5.9%

Ingredients

11 lbs. (5 kg) Golden Promise pale ale malt
 0.75 lb. (0.34 kg) Bairds Carastan malt
 (35 °L)
 12 AAU Target hops (90 min.) (1.5 oz./43 g at
 8% alpha acids)
 1 oz. (28 g) UK Fuggle (dry hop)
 1 oz. (28 g) UK Goldings hops (dry hop)
 Wyeast 1098 (British Ale) or White Labs
 WLP007 (Dry English Ale) or Lallemand
 Nottingham yeast
 ⅔ cup corn sugar (if priming)

Step by Step

Mash grains with hot water (1.2 qts./lb.) at 149–151 °F (65–66.1 °C) for 1 hour. Run off and sparge to collect about 6 gallons (23 L) of wort. Bring to a boil and add the bittering hops, boil 90 minutes. After done boiling, cool to 65–70 °F (18–21 °C) and pitch with yeast, preferably prepared previously as a 1-qt. (1-L) starter. Ferment five days, rack to secondary and add the dry hops in a sanitized weighted muslin bag. After 1–2 weeks, rack to keg or bottle and prime or carbonate in the usual way.

MODERN BRITISH IPA

(5 gallons/19 L, extract with grains)
 OG = 1.056 FG = 1.012
 IBU = 45 SRM = 8 ABV = 5.9%

Ingredients

7 lbs. (3.2 kg) Maris Otter liquid malt extract
 0.6 lb. (0.27 kg) pale dried malt extract
 0.75 lb. (0.34 kg) Bairds Carastan
 malt (35 °L)

12 AAU Target hops (90 min.) (1.5 oz./43 g at
 8% alpha acids)
 1 oz. (28 g) UK Fuggle (dry hop)
 1 oz. (28 g) UK Goldings hops (dry hop)
 Wyeast 1098 (British Ale) or White Labs
 WLP007 (Dry English Ale) or Lallemand
 Nottingham yeast
 ⅔ cup corn sugar (if priming)

Step by Step

Place grains in a muslin bag and steep for 15–20 minutes in 2 qt. (2 L) hot water at about 150 °F (65 °C). Run off into boiler and rinse grains with a 2 qt. (2 L) of hot water, and carefully dissolve extract in this liquor. The recipe is for a full 5-gallon (19-L) boil; if you use a smaller volume increase the bittering hops proportionately. Boil 60 minutes. After the boil, cool to 65–70 °F (18–21 °C), and pitch with yeast, preferably prepared previously as a 1-qt. (1-L) starter. Ferment five days, rack to secondary and add the dry hops in a sanitized weighted muslin bag. After 1–2 weeks, rack to keg or bottle and prime or carbonate in the usual way.

My Classic IPA

(5 gallons/19 L, all-grain)
 OG = 1.072 FG = 1.016
 IBU = 70 SRM = 9 ABV = 7.6%

Ingredients

14.5 lbs. (6.6 kg) Maris Otter pale ale malt
 4 oz. (113 g) amber malt
 4 oz. (113 g) English crystal malt (80 °L)
 18.8 AAU First Gold hops (90 min.)
 (2.5 oz./71 g at 7.5% alpha acids)
 1 oz. (28 g) Styrian Goldings hops (0 min.)
 1 oz. (28 g) UK Fuggle hops (0 min.)
 1 oz. (28 g) Styrian Goldings hops (dry hop)
 1 oz. (28 g) UK Fuggle hops (dry hop)
 Wyeast 1098 (British Ale) or White Labs
 WLP007 (Dry English Ale) or Lallemand
 Nottingham yeast
 ⅔ cup corn sugar (if priming)

Step by Step

Mash grains with hot water (1.2 qts./lb.) at 149–151 °F (65–66 °C) for 1 hour. Run off and sparge to collect about 6 gallons (23 L) of wort. Bring to a boil and add the First Gold bittering hops. Boil 90 minutes and add the first batch of Fuggle and Styrian Goldings hops at flameout, then let sit 30 minutes. Cool to 65–70 °F (18–21 °C), and pitch with yeast, preferably prepared previously as a 1-qt. (1-L) starter. Ferment five days, rack to secondary and add the Fuggle and Styrian Goldings dry hops in a sanitized weighted muslin bag. After 1–2 weeks rack to keg or bottle and prime or carbonate in the usual way.



MY CLASSIC IPA

(5 gallons/19 L, partial mash)
OG = 1.070 FG = 1.015
IBU = 70 SRM = 9 ABV = 7.6%

Ingredients

8 lbs. (3.6 kg) Maris Otter liquid malt extract
0.6 lb. (0.27 kg) pale dried malt extract
1 lb. (0.45 kg) 2-row pale malt
0.25 lb. (0.11 kg) amber malt
0.25 lb. (0.11 kg) English crystal malt (80 °L)
18.8 AAU First Gold hops (60 min.)
(2.5 oz./71 g at 7.5% alpha acids)
1 oz. (28 g) Styrian Goldings hops (0 min.)
1 oz. (28 g) UK Fuggle hops (0 min.)
1 oz. (28 g) Styrian Goldings hops (dry hop)
1 oz. (28 g) UK Fuggle hops (dry hop)
Wyeast 1098 (British Ale) or White Labs
WLP007 (Dry English Ale) or Lallemand
Nottingham yeast
¾ cup corn sugar (if priming)

Step by Step

Place grains in a muslin bag, and mash them with 2 qt. (2 L) hot water at 149–151 °F (65–66 °C) for 30–45 minutes. Run liquid into boiler, and rinse grains three times with 2 qts. (2 L) of hot water, dissolve extracts carefully, and bring to 5.5 gallons (21 L). If you use a smaller boil volume adjust the bittering hops proportionately. Bring wort to a boil, add the First Gold hops and boil 60 minutes, add the first batch of Fuggle and Styrian Goldings hops, then let sit 30 minutes. Cool to 65–70 °F (18–21 °C), and pitch with yeast, preferably prepared previously as a 1-qt. (1-L) starter. Ferment 5 days, rack to secondary and add the Fuggle and Styrian Goldings dry hops in a sanitized weighted muslin bag. After 1–2 weeks rack to keg or bottle and prime or carbonate in the usual way.

Samuel Smith Old Brewery's India Ale clone

(5 gallons/19 L, all-grain)
OG = 1.060 FG = 1.015
IBU = 50 SRM = 13 ABV = 6.1%

Ingredients

10 lbs. (4.5 kg) British pale ale malt
1 lb. (0.45 kg) toasted pale ale malt
0.75 lb. (0.34 kg) crystal malt (60 °L)
0.5 lb. (0.23 kg) malted wheat
7.25 AAU Northdown hops (60 min.)
(0.8 oz./23 g at 9% alpha acids)
6 AAU Kent Golding hops (30 min.)
(1.5 oz./43 g at 4% alpha acids)
4 AAU Bramling Cross hops (15 min.)
(1 oz./28 g at 4% alpha acids)

1 oz. (28 g) Fuggle hops (dry hop)
Wyeast 1098 (British Ale) or White Labs
WLP007 (Dry English Ale) yeast
(1.75 qt./1.75 L yeast starter)
¾ cup corn sugar (if priming)

Step by Step

Toast the one pound (0.45 kg) pale ale malt on a baking sheet in oven set at 350 °F (177 °C) for 15 minutes. Heat 15 quarts (~15 L) water to 164 °F (73 °C), crush grains, mix into liquor. Hold mash at 153 °F (67 °C) for 60 minutes. Collect around 6.5 gallons (25 L) of wort and bring wort to boil. Boil 90 minutes total, adding hops at times indicated in recipe. Cool wort to 70 °F (21 °C), aerate and pitch yeast. Ferment at 72 °F (22 °C), transfer to secondary, add Fuggle dry hops and condition at 50 °F (10 °C) for two weeks. Remove Fuggle, prime with corn sugar and bottle or transfer. Age in bottle or keg for 4 to 6 weeks.

Partial mash option:

Replace the 10 lbs. (4.5 kg) British pale ale malt with 2.25 lbs. (1 kg) light dried malt extract and 4.5 lbs. (2 kg) Maris Otter liquid malt extract. Toast the one pound (0.45 kg) pale ale malt on a baking sheet in oven set at 350 °F (177 °C) for 15 minutes. Steep toasted pale, crystal and wheat malts in 3.4 qts. (3.2 L) of water at 153 °F (67 °C) for 45 minutes. Rinse grains with 1.5 gallons (5.7 L) of water at 170 °F (77 °C). Add water to make 3 gallons (11.4 L) of wort, stir in the dried malt extract and bring to a boil. Add hops at times indicated in recipe. Add the liquid malt extract with 15 minutes left in boil. Cool wort, transfer to fermenter and top up to 5 gallons (19 L) with water. Aerate wort and pitch yeast. Ferment and bottle as described in all-grain recipe.

Shawn's Real IPA

(5 gallons/19 L, all-grain)
OG = 1.053 FG = 1.014
IBU = 70 SRM = ~12 ABV = 5.3%

Ingredients

9 lbs. (4.1 kg) English pale ale malt
1 lb. (0.45 kg) crystal malt (40 °L)
0.5 lb. (0.23 kg) crystal malt (60 °L)
0.5 lb. (0.23 kg) toasted 2-row malt
17.6 AAU Northern Brewer hop pellets
(60 min.) (2 oz./56 g at 8.8% alpha acids)
5 AAU East Kent Goldings hop plugs (5 min.)
(1 oz./28 g at 5% alpha acids)
3.2 AAU Willamette pellet hops (0 min.)
(1 oz./28 g at 3.2% alpha acids)
1 oz. (28 g) Kent Goldings hop pellets
(dry hop)
2 tsp. gypsum

1.5 tsp. Irish moss (15 min.)
Wyeast 1098 (British Ale) or White Labs
WLP007 (Dry English Ale) yeast
¾ cup corn sugar (if priming)

Step by Step

Toast the pale malt in an oven on a cookie sheet at 350 °F for 10 minutes. Then heat 4 gallons (15 L) of water to achieve a mash temperature of 152 °F (67 °C). Hold your mash at this temperature for 1 hour. Sparge with enough water to collect 6.5 gallons (24.6 L) in your brewpot. Add gypsum and bring to a boil. Boil for 60 minutes adding the hops and Irish moss at the times indicated in the ingredient list. Remove your kettle from heat then throw in the Willamette hops and let steep with the lid on for 5–10 minutes. Chill the wort to recommended fermentation temperature and transfer to a 6.5-gallon (24.6-L) primary fermenter. Be careful not to carry too much trub (the solid matter) into the fermenter.

Pitch the yeast. After four days, rack into secondary and dry hop with Kent Goldings. Bottle after 10 days, using corn sugar to prime. Store in a cool, dry place for six weeks. Chill to 55 °F (13 °C) and enjoy.

SHAWN'S REAL IPA

(5 gallons/19 L, extract with grains)
OG = 1.053 FG = 1.014
IBU = 70 SRM = ~12 ABV = 5.3%

Ingredients

3.3 lbs. (1.5 kg) English light liquid malt extract
3.3 lbs. (1.5 kg) English amber liquid malt extract
1 lb. (0.45 kg) crystal malt, (40 °L)
0.5 lb. (0.23 kg) toasted 2-row malt
17.6 AAU Northern Brewer hop pellets
(60 min.) (2 oz./56 g at 8.8% alpha acids)
5 AAU East Kent Goldings hop plugs (5 min.)
(1 oz./28 g at 5% alpha acids)
3.2 AAU Willamette hop pellets (0 min.)
(1 oz./28 g at 3.2% alpha acids)
1 oz. (28 g) Kent Goldings hop pellets
(dry hop)
2 tsp. gypsum
1.5 tsp. Irish moss (15 min.)
Wyeast 1098 (British Ale) or White Labs
WLP007 (Dry English Ale) yeast
¾ cup corn sugar (if priming)

Step by Step

Toast the pale malt in an oven on a cookie sheet at 350° F for 10 minutes. Then bring 2 gallons (7.6 L) of water to 160 °F (71 °C) and add cracked crystal and toasted pale malt in a grain bag. Steep in water for 30 minutes. Remove grains and sparge them with 1 gallon (4 L) of 165 °F (74 °C) water. Add gypsum and bring to a boil.



Remove brewpot from heat, then add all the liquid malt extract. Be careful not to let it boil over and do your other additions as per the ingredient list. Just before you pull the kettle off the stove, throw in the Willamette hops and let steep with the lid on for 5–10 minutes. Force cool and transfer to a 6.5-gallon (25-L) carboy. Be careful not to carry too much trub into the fermenter. Top off to 5 gallons (19 L) with cold water.

Pitch the yeast. After four days, rack into secondary and dry hop with Kent Goldings. Bottle after 10 days, using corn sugar to prime. Store in a cool, dry place for six weeks. Chill to 55 °F (13 °C) and enjoy.

Very Small Modern IPA

(5 gallons/19 L, all grain)
OG = 1.037 FG = 1.009
IBU = 27 SRM = 7 ABV = 3.6%

Ingredients

7 lbs. (3.2 kg) Maris Otter pale ale malt
0.75 lb. (0.34 kg) Bairds Carastan malt (35 °L)
4 AAU UK Fuggle hops (90 min.)
(1 oz./28 g at 4% alpha acids)
8 AAU UK Target hops (0 min.)
(1 oz./28 g at 8% alpha acids)
1 oz. (28 g) First Gold hops (dry hop)
Wyeast 1028 (London Ale) or White Labs WLP002 (English Ale) yeast
⅓ cup corn sugar (if priming)

Step by Step

Mash grains with hot water (1.2 qts./lb.) at 152–154 °F (67–68 °C) for 1 hour. Run off and sparge to collect about 6 gallons (23 L) of wort. Bring to a boil, add the Fuggle bittering hops, boil 90 minutes then add the Target hops and let sit 30 minutes. Cool to 65–70 °F (18–21 °C) and pitch with yeast, preferably prepared previously as a 1-qt. (1-L) starter.

Ferment five days, rack to secondary and add the First Gold dry hops in a sanitized weighted muslin bag. After 1–2 weeks, rack to keg or bottle and prime or carbonate in the usual way.

VERY SMALL MODERN IPA

(5 gallons/19 L, extract with grains)
OG = 1.037 FG = 1.009
IBU = 27 SRM = 7 ABV = 3.6%

Ingredients

4 lbs. (1.8 kg) Maris Otter liquid malt extract
0.5 lb. (0.23 kg) pale dried malt extract
0.75 lb. (0.34 kg) Bairds Carastan malt (35 °L)
4 AAU UK Fuggle hops (90 min.) (1 oz./28 g

at 4% alpha acids)
8 AAU UK Target hops (0 min.) (1 oz./28 g at 8% alpha acids)
1 oz. (28 g) First Gold hops (dry hop)
Wyeast 1028 (London Ale) or White Labs WLP002 (English Ale) yeast
⅓ cup corn sugar (if priming)

Step by Step

Place grains in a muslin bag and steep for 15–20 minutes in 2 qt. (2 L) hot water at about 150 °F (65 °C). Run off into kettle and rinse grains with 2 qt. (2 L) of hot water and carefully dissolve extract in this liquor. The recipe is for a full 5-gallon (19-L) boil; if you use a smaller volume increase the bittering hops proportionately. Boil with Fuggle hops 60 minutes, then add Target hops and let sit 30 minutes. Cool to 65–70 °F (18–21 °C), and pitch with yeast, preferably prepared previously as a 1-qt. (1-L) starter.

Ferment five days, rack to secondary and add the First Gold dry hops in a sanitized weighted muslin bag. After 1–2 weeks rack to keg or bottle and prime or carbonate in the usual way.

Well-Traveled IPA

(5 gallons/19 L, all-grain)
OG = 1.072 FG = 1.015
IBU = 60 SRM = 7 ABV = 7.9%

Ingredients

14.5 lbs. (6.6 kg) English pale ale malt (3–4 °L)
16.5 AAU East Kent Goldings or Fuggle hops (75 min.) (3.3 oz./94 g at 5% alpha acids)
2 oz. (57 g) East Kent Goldings or Fuggle hops (0 min.)
2 tsp. Burton salts
1 tsp. Irish moss
2 cups oak chips
Wyeast 1028 (London Ale) or White Labs WLP013 (London Ale) yeast
3 oz. (85 g) dried malt extract or corn sugar (if priming)

Step by Step

Mash in at 152 °F (67 °C). Let the mash rest for 60 minutes. Then sparge for about 90 minutes while raising the temperature of the mash gradually to 170 °F (77 °C). Add the Burton salts to the wort and boil for 90 minutes. Add bittering hops 15 minutes into the boil. Add Irish moss with 15 minutes left in the boil and aroma hops at flameout. Take a gravity reading and compensate for evaporation losses if needed. Heat-exchange to about 70 °F (21 °C) before pitching yeast. Pitch either a 1.5 qt. (1.5 L) starter or two packages of fresh liquid yeast. Ferment

about two weeks at 60–70 °F (16–21 °C). Rack into a secondary fermenter and leave for another two weeks. Rack again.

Make an oak chip tea by boiling the chips in just enough water to cover them for 10–15 minutes and then add the “tea” to the brew and let it mature in a warm chamber at roughly 85 °F (30 °C) for six weeks. Let the matured brew cool off to room temperature and rack again. Add a fresh package of yeast and the priming agent if priming. Let the brew condition for another two weeks. Omit the new yeast and priming agent if you carbonate your brew artificially in a keg.

WELL-TRAVELED IPA

(5-gallons/19 L, extract only)
OG = 1.072 FG = 1.015
IBU = 60 SRM = 9 ABV = 7.9%

Ingredients

10 lbs. (4.5 kg) Maris Otter liquid malt extract
17.5 AAU East Kent Goldings or Fuggle hops (60 min.) (3.5 oz./99 g at 5% alpha acid)
2 oz. (57 g) East Kent Goldings or Fuggle hops (0 min.)
2 tsp. Burton salts
1 tsp. Irish moss
2 cups oak chips
Wyeast 1028 (London Ale) or White Labs WLP013 (London Ale) yeast
3 oz. (85 g) dried malt extract or corn sugar (if priming)

Step by Step

Heat your brewing liquor to a boil. Remove from heat then stir in the liquid malt extract. Stir until all the extract is dissolved. Return the wort to a boil and add the Burton salts and bittering hops boil for 60 minutes. Add Irish moss with 15 minutes left in the boil and hops at flameout. Take a gravity reading and compensate for evaporation losses if needed. Heat-exchange to about 70 °F (21 °C) before pitching yeast. Pitch either a 1.5 quart (1.5 L) starter or two packages of fresh liquid yeast. Ferment for about two weeks at 60–70 °F (16–21 °C). Rack into a secondary fermenter and leave for another two weeks. Rack again.

Make an oak chip tea by boiling the chips in just enough water to cover them for 10–15 minutes and then add the “tea” to the brew and let it mature in a warm chamber at roughly 85 °F (30 °C) for six weeks. Let the matured brew cool off to room temperature and rack again. Add a fresh package of yeast and the priming agent if priming. Let the brew condition for another two weeks. Omit the new yeast and priming agent if you carbonate your brew artificially in a keg.

AMERICAN IPA

by JAMIL ZAINASHEFF



The Beer Judge Certification Program (BJCP) has distinguished four different IPA styles: English, American,

double, and specialty (which has numerous sub-categories). Some people further specify American IPAs as being a “West Coast” IPA. Count me among those who believe West Coast IPA is its own unique style, a creative outgrowth from brewers and drinkers that love the character of American-type hops. There was a time, not long ago, where the only place you could get such extremely hoppy beers was on the West Coast. In the rest of the United States American IPA was decidedly mild in comparison. When I was drinking at a brewpub in the Midwest about five years ago they warned me about how hoppy their IPA was when I ordered it, but it did not even come close to what I considered an American IPA at the time. That has certainly changed. For example, I was in Cleveland and I was blown away by some fantastic IPAs, such as Fat Head’s award-winning Head Hunter IPA, from Middle Heights, Ohio. It is such a good example, it even won the West Coast IPA festival in 2009. So, as the trend continues, the term West Coast takes on more of a historic note than a geographic requirement.

You should think of all IPA styles

as “hoppy,” but there is a vast difference in the level of hops between them. On the lower end is English IPA, which, while hoppy, does not have quite as bold a hop character as is found in American IPA. In an American IPA, the hop character should always be up front and the bittering obvious. The West Coast variant takes that hoppiness further and the hop character is almost overwhelming. In American IPA, the malt character takes a backseat, while in English IPA the bittering and hop character should not completely overpower the fermentation and malt character.

The malt character for American IPA is generally much less pronounced than in English IPA. This style is more about hops, so a clean, subtle malt character is all that is required. Some examples might include some toasty or caramel flavors, but that tends to detract from the hop character, so the use of specialty malts is less common in the West Coast examples. Mouthfeel is medium-light to medium-bodied and while there is a prominent bitterness, it is never harsh or astringent.

The BJCP style guide lists the color as medium gold to light reddish-amber, but I think the color has shifted lighter, maybe light gold to light copper. Many examples are hazy from high levels of dry hopping.

The base malt for American IPA is

often North American two-row, although use of North American pale ale malt or even British pale ale malt is acceptable. The slightly higher kilning provides a richer biscuit-like malt character that can help add balance to a highly bitter beer. Extract brewers should use the freshest light-colored North American extract.

All-grain brewers should use a single infusion mash. A temperature in the range of 149 to 154 °F (65 to 68 °C) works well, although one fine commercial example, Lagunitas IPA, uses a mash temperature of 160 °F (71 °C). Use a lower temperature when using lower attenuating yeasts or higher starting gravities. Use a higher mash temperature when using the higher attenuating yeasts or lower starting gravity beers. If you are unsure, a great starting point is 152 °F (67 °C).

I like the clean, light malt character of American-style IPAs brewed with pale malt only, but some folks might prefer a richer character and will include specialty malts such as crystal. While some examples may have a touch of caramel character, I think caramel sweetness is best reserved for the smaller, less hoppy IPA versions. Do not try to balance high levels of bittering with high levels of sweetness, which results in a heavy, less drinkable beer. The type of crystal malt also makes a difference. Darker color crystal malts add richer colors, as well as some dark caramel, toasty, roasted, and raisin flavors. Lighter color crystal malts add sweeter caramel notes. The crystal malt can range from 0 to 10% of the grist. However, the darker the crystal, the less you should use. An IPA with 10% 150 °L crystal malt may not be cloying, but it can be too intense a flavor for this style. On the flipside, an IPA with all light color crystal malt

will tend to be sweet and lack depth of character. Just keep in mind, American IPA is not about specialty malts, but rather clean malt flavor in the background and hop character up front.

If you are looking for more complexity or increased head retention, you can add other malts as well. Wheat malt, Munich, Vi-

Australia work quite well. I have been blown away by the “American” hop character of some of these New World hops.

The bittering level for American IPA is in the range of 40 to 70 IBU (and West Coast styles can be higher still). While the bitterness should be firm and obvious, it should not be harsh. Keep in mind



The overall flavor should be about hops and malt is only a secondary characteristic. It should be a clean, relatively simple malt background that supports the massive hop load, but does not try to balance it.



enna, Victory®, biscuit, and more are common additions in many recipes, but restraint is important so that the beer does not become too malt heavy. In general, keep the total of all specialty grain additions to less than 15% of an all-grain grist.

To brew an American IPA you need hops with “American” flavor. Pretty much any hop that starts with a “C” is fair game, but there are a lot more that work well to produce that citrusy, piney, floral, resin, fruity and even dank character that people have come to love. Other hops that are frequently used in this style are Amarillo and Simcoe. Again, the most important aspect of this style is the character of the hops. The old version of the BJCP style guide mentions that the character is from American hops, but that was revised in 2015 to state “American or New World” hops, which makes sense as new hop cultivars from New Zealand and

that there are many factors at play in the final impression of bitterness for the drinker. The starting and final gravities, water sulfate levels, the character of malts selected, the type of base malt, the yeast strain, the pitching rate, and even the yeast cell size have an impact on the perceived bittering. For most American IPAs, a bitterness to starting gravity ratio (IBU divided by OG) between 0.75 and 1.0 gives the proper result. As a general rule of thumb in determining late hop amounts, include at least double the amount of bittering hops. If you are making more of a West Coast-style IPA, then use double what you would in an average IPA. Keep in mind this is just a generalization, since using very low or high alpha acid hops makes the equation faulty. For an American IPA, include two or more late hop additions using two different hop varieties, totaling around 2 to 4 oz. (28 – 85 g) for a 5 gallon (19 L) batch at 20 min-

utes or later. You can use more than two varieties, but do not go crazy. A couple of varieties creates an interesting complexity; ten different hop varieties creates an indistinct “hoppiness.” Dry hopping and the use of a hop jack are also good ways to develop hop character for this style and dry hopping is almost required for a West Coast version. Dry hopping for a week at 62 °F (17 °C) is common.

The sulfate content of brewing water affects the character of hop bitterness to a significant degree. Brewing an IPA with water that has very low sulfate content results in a “flabby” bitterness. When brewing with low sulfate water you are forced to add a large amount of hop alpha acids to develop enough bittering. However, adding large quantities of hops to get a stronger bittering can result in a resin-like character. Cutting back on the hops and adding a moderate amount of gypsum (or “Burtonizing” the water), results in a sharper, crisper hop bitterness without the resin character. Most breweries add some amount of gypsum to their bitter beers, but it is easy to overdo mineral additions, resulting in a harsh character. Most water only requires a small amount of gypsum. If you do not know the sulfate content of your water, start low, with one gram of gypsum per gallon. Generally, you should need no more than three grams per gallon. It is usually better to add less gypsum than to add more, and it only takes a small amount to accentuate hop bitterness. You can add gypsum to the mash or, if you are brewing with extract, you can add it directly to your boil kettle water before you heat it.

The fermentation character for American IPA is usually clean, with restrained esters. Many brewers use a clean “Chico” strain for this style, but do not immedi-

ately rule out using the more character rich English-style yeast strains. I would not use any of the very low attenuating strains or the ones with huge esters, but there are many of them that you can ferment cooler for a less estery

will need to take steps to ensure enough attenuation. You can lower the starting gravity, lower the mash temperature, or replace a portion of the base malt with simple sugar to aid in drying out the final beer.



The sulfate content of brewing water affects the character of hop bitterness to a significant degree.

Brewing an IPA with water that has very low sulfate content results in a

“flabby” bitterness.



character and they also attenuate really well. My favorites are White Labs WLP007 (Dry English Ale) and Wyeast 1098 (British Ale). Both attenuate well and, when fermenting at lower temperatures, provide a cleaner, character with just a touch more esters that help punch up the character of the beer. If you need to use dry yeast, Safale US-05 should produce good results.

At moderate temperatures (65–70 °F /18–21°C), the American yeasts produce low levels of esters. You can go higher and still get good results, but the levels of compounds such as acetaldehyde and fusel alcohols will increase with temperature and can result in a less than pleasant beer. I start fermentation in the middle of this range (68 °F/20 °C), letting the temperature rise a few degrees, slowly, over a couple days. This creates the expected level of esters, helps the yeast attenuate fully, and keeps the amount of acetaldehyde in the finished beer to a minimum. If your situation restricts you to using less attenuative yeast, you

When you serve your American IPA, experiment with different carbonation levels and different serving temperatures. Warmer temperatures will often allow the beer to express more of the hop aromatics. However, warmer is not always the answer. Depending on your blend of hops, cooler serving temperatures might suppress one hop character and let another shine, so don't be afraid to test.

The same goes for carbonation levels. While 2 to 2.5 volumes of CO₂ is generally a good target, higher can help express hop aroma, but also can add an acidic sharpness that might not go well with the late hop character. If you have a draft system, you can start low and then try higher levels. You should be able to find the right level based on taste. While the perfect level may not be obvious the first time you try different CO₂ levels, it is pretty obvious when the beer slips from perfect to some other level. Have fun with it and you will be surprised how much difference it makes in an IPA.



AleSmith Brewing Co.'s AleSmith IPA clone

(5 gallons/19 L, all-grain)
OG = 1.073 FG = 1.014
IBU = 93 SRM = 5 ABV = 8.2%

Ingredients

14.66 lbs. (6.6 kg) Gambrinus 2-row pale malt
2 oz. (57 g) crystal malt (15 °L)
2 oz. (57 g) Carapils® malt (6 °L)
2 oz. (57 g) Munich malt (10 °L)
2 oz. (57 g) wheat malt
1 oz. (28 g) honey malt
7 AAU Columbus hops (first wort hop) (0.5 oz./14 g at 14% alpha acids)
7 AAU Simcoe® hops (first wort hop) (0.53 oz./15 g at 13% alpha acids)
3.25 AAU Columbus hops (60 min.) (0.23 oz./6.5 g at 14% alpha acids)
1.33 AAU Amarillo® hops (30 min.) (0.17 oz./4.8 g at 8% alpha acids)
2.25 AAU Simcoe® hops (15 min.) (0.17 oz./4.8 g at 13% alpha acids)
2.66 AAU Columbus hops (10 min.) (0.19 oz./5.4 g at 14% alpha acids)
2 AAU Cascade hops (5 min.) (0.4 oz./11 g at 5% alpha acids)
5 AAU Cascades hops (1 min.) (1 oz./28 g at 5% alpha acids)
0.5 oz. (14 g) Columbus hops (dry hop)
0.5 oz. (14 g) Amarillo® hops (dry hop)
0.5 oz. (14 g) Cascade hops (dry hop)
0.25 oz. (7.1 g) Simcoe® hops (dry hop)
0.25 oz. (7.1 g) Chinook hops (dry hop)
1 tsp. Irish moss (15 min.)
White Labs WLP001 (California Ale),
Wyeast 1056 (American Ale), or
Safale US-05 yeast
¾ cup corn sugar (if priming)

Step by Step

Mash at 152 °F (67 °C) for 60 minutes. The first wort hops are to be added to the wort before the boil starts, so add them during the sparge. Boil for 90 minutes, following hop addition schedule. Whirlpool wort and let sit for 15 minutes before you begin cooling. Ferment at 68 °F (20 °C).

ALESMITH BREWING CO.'S ALESMITH IPA CLONE

(5 gallons/19 L, extract with grains)
OG = 1.073 FG = 1.014
IBU = 93 SRM = 5 ABV = 8.2%

Ingredients

7.25 lbs. (3.3 kg) light dried malt extract
1 lb. (0.45 kg) 2-row pale malt

2 oz. (57 g) crystal malt (15 °L)
2 oz. (57 g) Carapils® malt (6 °L)
2 oz. (57 g) Munich malt (10 °L)
2 oz. (57 g) wheat malt
1 oz. (28 g) honey malt
7 AAU Columbus hops (first wort hop) (0.5 oz./14 g at 14% alpha acids)
7 AAU Simcoe® hops (first wort hop) (0.53 oz./15 g at 13% alpha acids)
3.25 AAU Columbus hops (60 min.) (0.23 oz./6.5 g at 14% alpha acids)
1.33 AAU Amarillo® hops (30 min.) (0.17 oz./4.8 g at 8% alpha acids)
2.25 AAU Simcoe® hops (15 min.) (0.17 oz./4.8 g at 13% alpha acids)
2.66 AAU Columbus hops (10 min.) (0.19 oz./5.4 g at 14% alpha acids)
2 AAU Cascade hops (5 min.) (0.4 oz./11 g at 5% alpha acids)
5 AAU Cascades hops (1 min.) (1 oz./28 g at 5% alpha acids)
0.5 oz. (14 g) Columbus hops (dry hop)
0.5 oz. (14 g) Amarillo® hops (dry hop)
0.5 oz. (14 g) Cascade hops (dry hop)
0.25 oz. (7.1 g) Simcoe® hops (dry hop)
0.25 oz. (7.1 g) Chinook hops (dry hop)
1 tsp. Irish moss (15 min.)
White Labs WLP001 (California Ale),
Wyeast 1056 (American Ale), or
Safale US-05 yeast
¾ cup corn sugar (if priming)

Step by Step

Steep crushed pale malt plus specialty malts in 2 quarts (2 L) of water at 152 °F (67 °C) for 45 minutes. The first wort hops are to be added to the wort before the boil starts, so add them as the wort is heating up to boil. Boil for 90 minutes, following hop addition schedule. Whirlpool wort and let sit for 15 minutes before you begin cooling. Ferment at 68 °F (20 °C).

Anchor Brewing Co.'s Liberty Ale clone

(5 gallons/19 L, all-grain)
OG = 1.059 FG = 1.011
IBU = 48 SRM = 4 ABV = 5.9%

Ingredients

12.5 lbs. (5.7 kg) 2-row pale malt
4.1 AAU Cascade pellet hops (60 min.) (0.5 oz./14 g at 8.2% alpha acids)
6.2 AAU Cascade pellet hops (45 min.) (0.75 oz./21 g at 8.2% alpha acids)
0.5 oz. (14 g) Cascade pellet hops (0 min.)
1 oz. (28 g) Cascade pellet hops (dry hop)
White Labs WLP051 (California Ale V) or Wyeast 1272 (American Ale II) yeast
0.3 oz. (8 g) gypsum (optional if using

very low mineral water)
¾ cup corn sugar (if priming)

Step by Step

Mill the grains and mix with 4.7 gallons (17.8 L) of 158 °F (70 °C) strike water and optional gypsum (see ingredients list) to reach a mash temperature of 149 °F (65 °C). Hold this temperature for 60 minutes. Vorlauf until your runnings are clear. Sparge the grains with 2.8 gallons (10.6 L) of 168 °F (75 °C) water and top up with water to obtain 6 gallons (23 L) of 1.049 specific gravity wort. Boil for 60 minutes, adding hops according to the ingredients list.

After the boil, turn off the heat and chill the wort to slightly below fermentation temperature, about 65 °F (18 °C). Aerate the wort with pure oxygen or filtered air and pitch yeast. Ferment at 67 °F (19 °C) for four days. Add the dry hops and raise to 72 °F (22 °C) for three days. Once the beer reaches terminal gravity (approximately seven days total) bottle or keg the beer and carbonate.

ANCHOR BREWING CO.'S LIBERTY ALE CLONE

(5 gallons/19 L, extract only)
OG = 1.059 FG = 1.011
IBU = 48 SRM = 5 ABV = 5.9%

Ingredients

8 lbs. 3 oz. (3.7 kg) golden liquid malt extract
4.1 AAU Cascade pellet hops (60 min.) (0.5 oz./14 g at 8.2% alpha acids)
6.2 AAU Cascade pellet hops (45 min.) (0.75 oz./21 g at 8.2% alpha acids)
0.5 oz. (14 g) Cascade pellet hops (0 min.)
1 oz. (28 g) Cascade pellet hops (dry hop)
White Labs WLP051 (California Ale V) or Wyeast 1272 (American Ale II) yeast
0.2 oz. (6 g) gypsum (optional if using very low mineral water)
¾ cup corn sugar (if priming)

Step by Step

Bring 5.4 gallons (20.4 L) of water and optional gypsum (see ingredients list) to boil, turn off the flame, and stir in the liquid malt extract until completely dissolved. Top up with water if necessary to obtain 6 gallons (23 L) of 1.049 specific gravity wort.

Boil for 60 minutes, adding hops according to the ingredients list. After the boil, turn off the heat and chill the wort to slightly below fermentation temperature, about 65 °F (18 °C). Aerate the wort with pure oxygen or filtered air and pitch the yeast.

Ferment at 67 °F (19 °C) for four days. Add the dry hops and raise to 72 °F (22 °C) for three days. Once the beer reaches terminal gravity (approximately seven days total) bottle or keg the beer and carbonate.



Tips for Success:

Anchor's ales spend three days in open fermentation and the temperatures are allowed to ramp over that time. If you want to do an open fermentation at home, focus on producing extremely sanitary wort, cleaning and sanitizing everything the wort comes in contact with, and pitching a known pure and viable yeast strain. A fermentation vessel such as a bucket can be used, and if you're paranoid about contamination from fruit flies you can stretch some cheesecloth over the top. To replicate Anchor's process you would rack to a closed vessel with an airlock such as a carboy after three to four days and do any dry hopping there.

Bacchus Wai-iti IPA clone

(5 gallons/19 L, all-grain)
OG = 1.063 FG = 1.010
IBU = 92 SRM = 9 ABV = 7.1%

Ingredients

11 lbs. (5 kg) 2-row pale ale malt
10 oz. (0.28 kg) dextrose sugar
8 oz. (0.22 kg) Weyermann Caramunich® I malt
8 oz. (0.22 kg) Weyermann Carapils®/Carafaom® malt
20.5 AAU Waimea pellet hops (60 min.) (1.3 oz./38 g at 15.8% alpha acids)
3.4 AAU Wai-iti pellet hops (20 min.) (1 oz./28 g at 3.4% alpha acids)
3.4 AAU Wai-iti pellet hops (10 min.) (1 oz./28 g at 3.4% alpha acids)
3.4 AAU Wai-iti pellet hops (0 min.) (1 oz./28 g at 3.4% alpha acids)
2.1 oz. (60 g) Wai-iti pellet hops (dry hop)
½ tsp. yeast nutrient (15 min.)
½ whirlfloc tablet (5 min.)
Wyeast 1056 (American Ale), White Labs WLP001 (California Ale,) or Safale US-05 yeast
⅓ cup corn sugar (if priming)

Step by Step

Use an infusion mash at 149 °F (65 °C) for 90 minutes. Boil for 60 minutes add the hops per the ingredients list and yeast nutrient at 15 minutes. With 5 minutes left, add the whirlfloc tablet. At the end of the boil, let wort stand for 10–15 minutes before beginning the chilling process. Chill the wort rapidly to 65 °F (18 °C) and pitch the yeast. Ferment at 66 °F (19 °C). Carbonate to 2 to 2.5 volumes.

BACCHUS WAI-ITI IPA CLONE

(5 gallons/19 L, extract with grains)
OG = 1.063 FG = 1.010

IBU = 92 SRM = 9 ABV = 7.1%

Ingredients

8 lbs. (3.6 kg) Coopers light liquid malt extract
10 oz. (0.28 kg) dextrose sugar
8 oz. (0.22 kg) Weyermann Caramunich® I malt
20.5 AAU Waimea pellet hops (60 min.) (1.3 oz./38 g at 15.8% alpha acids)
3.4 AAU Wai-iti pellet hops (20 min.) (1 oz./28 g at 3.4% alpha acids)
3.4 AAU Wai-iti pellet hops (10 min.) (1 oz./28 g at 3.4% alpha acids)
3.4 AAU Wai-iti pellet hops (0 min.) (1 oz./28 g at 3.4% alpha acids)
2.1 oz. (60 g) Wai-iti pellet hops (dry hop)
½ whirlfloc tablet (15 min.)
½ tsp. yeast nutrient (15 min.)
Wyeast 1056 (American Ale) or White Labs WLP001 (California Ale,) or Safale US-05 yeast
⅓ cup corn sugar (if priming)

Step by Step

Heat 3 gallons (11 L) water in your kettle to 160 °F (71 °C). Place the crushed grains in a muslin bag and soak in the hot water for 20 minutes. Rinse the grains with 2 qts. (2 L) hot water. Top off kettle with water to 6 gallons (23 L). Remove from heat and add liquid extract just as water starts to boil. Return the wort to heat after all the extract has dissolved and bring to a boil. Boil for 60 minutes add the hops per the ingredients list, and whirlfloc tablet and yeast nutrient at 15 minutes. At the end of the boil, let wort stand for 10–15 minutes before beginning the chilling process. Chill the wort rapidly to 65 °F (18 °C) and pitch the yeast. Ferment at 66 °F (19 °C). Carbonate to 2 to 2.5 volumes.

Bale Breaker Brewing Co.'s Top Cutter IPA clone

(5 gallons/19 L, all-grain)
OG = 1.058 FG = 1.008
IBU = 70 SRM = 6 ABV = 6.8%

Ingredients

10.75 lbs. (4.9 kg) 2-row pale malt
12 oz. (0.34 kg) Munich malt (8 °L)
4 oz. (0.11 kg) Vienna malt
4 oz. (0.11 kg) Carapils® (dextrin) malt
4 oz. (0.11 kg) caramel malt (40 °L)
4.6 AAU Simcoe® hop pellets (first wort hop) (0.35 oz./10 g at 13.2% alpha acids)
9.6 AAU Warrior® hop pellets (60 min.) (0.6 oz./17 g at 16% alpha acids)
6.6 AAU Simcoe® hop pellets (15 min.) (0.5 oz./14 g at 13.2% alpha acids)
0.75 oz. (21 g) Simcoe® hop pellets (0 min.)

0.75 oz. (21 g) Citra® hop pellets (0 min.)
0.75 oz. (21 g) Mosaic™ hop pellets (0 min.)
1 oz. (28 g) Citra® hop pellets (dry hop)
1 oz. (28 g) Ahtanum™ hop pellets (dry hop)
¼ tsp. Irish moss (30 min.)
½ tsp. yeast nutrient (15 min.)
White Labs WLP001 (California Ale), Wyeast 1056 (American Ale) or Safale US-05 yeast
⅓ cup corn sugar (if priming)

Step by Step

Mix all of the crushed grains with 4 gallons (15 L) of 170 °F (77 °C) water to stabilize at 149 °F (65 °C) for 60 minutes. Sparge slowly with 175 °F (79 °C) water. Collect 6 gallons (23 L) of wort runoff to boil 60 minutes. Boil 60 minutes, adding ingredients as per the schedule. Cool the wort to 75 °F (24 °C) and pitch your yeast. Hold at 68 °F (20 °C) until fermentation is complete. Transfer to a carboy, add the dry hops and allow the beer to condition for one week and then bottle or keg.

BALE BREAKER BREWING CO.'S TOP CUTTER IPA CLONE

(5 gallons/19 L, partial mash)
OG = 1.058 FG = 1.008
IBU = 70 SRM = 7 ABV = 6.8%

Ingredients

3.3 lbs. (1.5 kg) Briess light, unhopped, liquid malt extract
2 lbs. (0.9 kg) light, dried malt extract
1.75 lbs. (0.79 kg) two-row pale malt
12 oz. (0.34 kg) Munich malt (8 °L)
4 oz. (0.11 kg) Vienna malt
4 oz. (0.11 kg) Carapils® (dextrin) malt
4 oz. (0.11 kg) caramel malt (40 °L)
4.6 AAU Simcoe® hop pellets (first wort hop) (0.35 oz./10 g at 13.2% alpha acids)
12 AAU Warrior® hop pellets (60 min.) (0.75 oz./21 g at 16% alpha acids)
6.6 AAU Simcoe® hop pellets (15 min.) (0.5 oz./14 g at 13.2% alpha acids)
0.75 oz. (21 g) Simcoe® hop pellets (0 min.)
0.75 oz. (21 g) Citra® hop pellets (0 min.)
0.75 oz. (21 g) Mosaic™ hop pellets (0 min.)
1 oz. (28 g) Citra® hop pellets (dry hop)
1 oz. (28 g) Ahtanum™ hop pellets (dry hop)
¼ tsp. Irish moss (30 min.)
½ tsp. yeast nutrient (15 min.)
White Labs WLP001 (California Ale), Wyeast 1056 (American Ale) or Safale US-05 yeast
⅓ cup corn sugar (if priming)

Step by Step

Steep the crushed grain in 2 gallons (7.6 L) of water at 149 °F (65 °C) for 30 minutes. Remove grains from the wort and rinse with 2 quarts (1.8 L) of hot water. Boil 60 minutes,



adding ingredients as per the schedule. When done, add the wort to 2 gallons (7.6 L) of cold water in the sanitized fermenter and top off with cold water up to 5 gallons (19 L). Cool the wort to 75 °F (24 °C) and pitch your yeast. Hold at 68 °F (20 °C) until fermentation is complete. Transfer to a carboy, add the dry hops and allow the beer to condition for one week and then bottle or keg.

Ballantine Brewing Co.'s Ballantine IPA clone

(5 gallons/19 L, all-grain)
OG = 1.074 FG = 1.016
IBU = 62 SRM = 9 ABV = 7.4%

Ingredients

11.5 lbs. (5.2 kg) 6-row pale malt
2.4 lbs. (1.1 kg) flaked maize
1.75 lbs. (0.79 kg) light Munich malt
8 oz. (0.23 kg) crystal malt (60 °L)
13.3 AAU Cluster hop pellets (60 min.)
(1.9 oz./53 g at 7% alpha acids)
8 AAU Brewers Gold hop pellets (25 min.)
(1 oz./28 g at 8% alpha acids)
1 oz. (28 g) East Kent Golding hop pellets (3 min.)
1 oz. (28 g) East Kent Golding hop pellets (dry hop)
1 tsp. Irish moss (15 min.)
East Coast Yeast ECY10 (Old Newark Ale),
Lallemand BRV-97,
Wyeast 1056 (American Ale), or
White Labs WLP001 (California Ale) yeast
¾ cup corn sugar (if priming)

Step by Step

Single infusion mash for 60 minutes at 150 °F (66 °C). Boil wort for 90 minutes adding the hops at the times indicated. Ferment at 68 °F (20 °C). Add dry hops after primary fermentation dies down and leave beer on dry hops for five to seven days. Bottle or keg as usual.

BALLANTINE BREWING CO.'S BALLANTINE IPA CLONE

(5 gallons/19 L, extract with grains)
OG = 1.074 FG = 1.016
IBU = 62 SRM = 9 ABV = 7.4%

Ingredients

8.5 lbs. (3.86 kg) American light lager liquid malt extract
1.5 lbs. (0.68 kg) Munich liquid malt extract
8 oz. (0.23 kg) crystal malt (60 °L)
13.3 AAU Cluster hop pellets (60 min.)
(1.9 oz./53 g at 7% alpha acids)
8 AAU Brewers Gold hop pellets (25 min.)

(1 oz./28 g at 8% alpha acids)
1 oz. (28 g) East Kent Golding hop pellets (3 min.)
1 oz. (28 g) East Kent Golding hop pellets (dry hop)
1 tsp. Irish moss (15 min.)
East Coast Yeast ECY10 (Old Newark Ale),
Lallemand BRV-97,
Wyeast 1056 (American Ale), or
White Labs WLP001 (California Ale) yeast
¾ cup corn sugar (if priming)

Step by Step

Place crushed specialty grains in a coarse bag and steep in 2 quarts (2 L) of water at 140–150 °F (60–66 °C) for 30 minutes. Add the steeping water to the kettle with the malt extract at the beginning of the boil. Boil for 60 minutes adding hops at times indicated. Ferment at 68 °F (20 °C). Add dry hops after primary fermentation dies down and leave beer on dry hops for five to seven days. Bottle or keg as usual.

Barley's Brewing Co.'s Blurry Bike IPA clone

(5 gallons/19 L, all-grain)
OG = 1.058 FG = 1.015
IBU = 80+ SRM = 5 ABV = 5.8%

Ingredients

11.5 lbs. (5.2 kg) British 2-row pale malt
0.5 lb. (0.23 kg) crystal malt (20 °L)
7 AAU Columbus hops (first wort hop)
(0.5 oz./14 g at 14% alpha acids)
21 AAU Columbus hops (45 min.)
(1.5 oz./43 g at 14% alpha acids)
28 AAU Columbus hops (20 min.)
(2 oz./57 g at 14% alpha acids)
2 oz. (57 g) Columbus hops (0 min.)
2 oz. (57 g) Columbus hops (dry hop)
White Labs WLP005 (British Ale) or
Wyeast 1187 (Ringwood Ale) yeast
1 cup corn sugar (if priming)

Step by Step

Mash grains at 150 °F (66 °C) in 3.75 gallons (14.2 L) of water for 45 minutes. During sparge, add the first wort hops to the kettle and then bring up to a boil. Boil wort for 60 minutes, adding remaining hops at times indicated. Cool wort and transfer to fermenter. Ferment at 68 °F (20 °C). Add dry hops after primary fermentation dies down and leave beer on dry hops for five to seven days. Bottle or keg as usual.

BARLEY'S BREWING CO.'S BLURRY BIKE IPA CLONE

(5 gallons/19 L, extract with grains)
OG = 1.058 FG = 1.015

IBU = 80+ SRM = 6 ABV = 5.8%

Ingredients

1.5 lbs. (0.68 kg) British 2-row pale malt
0.5 lb. (0.23 kg) crystal malt (20 °L)
3 lbs. (1.4 kg) light dried malt extract
3.3 lbs. (1.5 kg) light liquid malt extract (15 min.)
7 AAU Columbus hops (first wort hop)
(0.5 oz./14 g at 14% alpha acids)
21 AAU Columbus hops (45 min.)
(1.5 oz./43 g at 14% alpha acids)
28 AAU Columbus hops (20 min.)
(2 oz./57 g at 14% alpha acids)
2 oz. (57 g) Columbus hops (0 min.)
2 oz. (57 g) Columbus hops (dry hop)
White Labs WLP005 (British Ale) or
Wyeast 1187 (Ringwood Ale) yeast
1 cup corn sugar (if priming)

Step by Step

Steep crushed grains at 150 °F (66 °C) in 3 qts. (2.8 L) of water for 45 minutes. Add water to make 3 gallons (11 L), add dried malt extract and first wort hops and bring to a boil. Boil wort for 60 minutes, adding remaining hops at times indicated. Stir in liquid malt extract during final 15 minutes of the boil. Cool wort and transfer to fermenter. Top up to 5 gallons (19 L) with cool water, aerate and pitch yeast. Ferment at 68 °F (20 °C). Add dry hops after primary fermentation dies down and leave beer on dry hops for five to seven days. Bottle or keg as usual.

Bear Republic Brewing Co.'s Racer 5 clone

(5 gallons/19 L, all-grain)
OG = 1.070 FG = 1.015
IBU = 75 SRM = 6 ABV = 7.5%

Ingredients

11.5 lbs. (5.2 kg) 2-row pale malt
1.67 lbs. (0.76 kg) wheat malt
0.63 lb. (0.28 kg) crystal malt (15 °L)
0.4 lb. (0.19 kg) dextrose (corn sugar)
0.2 lb. (95 g) Carapils® malt
6 AAU Chinook hops (90 min.)
(0.5 oz./14 g at 12% alpha acids)
5 AAU Cascade hops (60 min.)
(1 oz./28 g at 5% alpha acids)
7.5 AAU Cascade hops (0 min.)
(1.5 oz./43 g at 5% alpha acids)
4.5 AAU Centennial hops (0 min.)
(0.5 oz./14 g at 9% alpha acids)
7 AAU Columbus hops (0 min.)
(0.5 oz./14 g at 14% alpha acids)
0.4 oz. (11 g) Centennial hops (dry hop)
0.4 oz. (11 g) Chinook hops (dry hop)
1 oz. (28 g) Cascade hops (dry hop)
1 oz. (28 g) Columbus hops (dry hop)



Wyeast 1272 (American Ale II) or
White Labs WLP051 (California V) yeast
¾ cups corn sugar (if priming)

Step by Step

Mash in at 145 °F (63 °C) then ramp temperature to 152 °F (67 °C) for conversion. Mash out to 170 °F (77 °C). Boil for 90 minutes, adding hops at the times indicated in the ingredient list. After the boil is finished, remove from heat and add the final hop addition. Stir the brewpot into a whirlpool and let stand for 30 minutes before chilling. Ferment at 68 °F (20 °C). After primary fermentation is complete, add the dry hops and wait five to seven days before bottling or kegging.

BEAR REPUBLIC BREWING CO.'S RACER 5 CLONE

(5 gallons/19 L, extract with grains)
OG = 1.070 FG = 1.015
IBU = 75 SRM = 6 ABV = 7.5%

Ingredients

6 lbs. (2.7 kg) dried malt extract
0.33 lbs. (0.15 kg) 2-row pale malt
1.67 lbs. (0.76 kg) wheat malt
0.63 lbs. (0.28 kg) crystal malt (15 °L)
0.4 lbs. (0.19 kg) dextrose (corn sugar)
0.2 lbs. (95 g) Carapils® malt
6 AAU Chinook hops (90 min.)
(0.5 oz./14 g at 12% alpha acids)
5 AAU Cascade hops (60 min.)
(1 oz./28 g at 5% alpha acids)
7.5 AAU Cascade hops (0 min.)
(1.5 oz./43 g at 5% alpha acids)
4.5 AAU Centennial hops (0 min.)
(0.5 oz./14 g at 9% alpha acids)
7 AAU Columbus hops (0 min.)
(0.5 oz./14 g at 14% alpha acids)
0.4 oz. (11 g) Centennial hops (dry hop)
0.4 oz. (11 g) Chinook hops (dry hop)
1 oz. (28 g) Cascade hops (dry hop)
1 oz. (28 g) Columbus hops (dry hop)
Wyeast 1272 (American Ale II) or
White Labs WLP051 (California V) yeast
¾ cups corn sugar (if priming)

Step by Step

Steep crushed grains in 1 gallon (3.8 L) of water at 152 °F (67 °C) for 45 minutes. Bring grains up to 170 °F (77 °C) then remove the grains and place in a colander. Wash the grains with 1 gallon (3.8 L) hot water. Top off the 5 gallons then boil for 90 minutes, adding hops at the times indicated in the ingredient list. After the boil is finished, remove from heat and add the final hop addition. Stir the brewpot into a whirlpool and let stand for 30 minutes before chilling. Transfer wort to your fermenter and top off to 5 gallons (19 L). Ferment at 68 °F (20 °C). After primary fermentation is com-

plete, add the dry hops and wait five to seven days before bottling or kegging.

Bell's Brewing Co.'s Two Hearted Ale clone

(5 gallons/19 L, all-grain)
OG = 1.064 FG = 1.013
IBU = 56 SRM = 8 ABV = 7%

Ingredients

10.5 lbs. (4.8 kg) 2-row pale malt
2 lbs. (0.91 kg) Vienna malt
0.5 lbs. (0.23 kg) crystal malt (40 °L)
0.33 lbs. (0.15 kg) Carapils® malt (6 °L)
10 AAU Centennial hops (45 min.)
(1 oz./28 g of 10% alpha acids)
10 AAU Centennial hops (30 min.)
(1 oz./28 g of 10% alpha acids)
0.5 oz. (14 g) Centennial hops (0 min.)
3 oz. (85 g) Centennial hops (dry hop)
½ tsp. Irish moss (15 min.)
Wyeast 1272 (American Ale II), White
Labs WLP051 (California V) or yeast
cultured from a bottle of this beer
¾ cups corn sugar (if priming)

Step by Step

Mash at 152 °F (67 °C) for 1 hour. Boil wort for 75 minutes, adding Centennial hops at the times indicated in the recipe. Ferment at 70 °C (21 °C). Dry hop for three days in secondary. Bottle or keg as normal.

BELL'S BREWING CO.'S TWO HEARTED ALE CLONE

(5 gallons/19 L, partial mash)
OG = 1.064 FG = 1.013
IBU = 56 SRM = 8 ABV = 7%

Ingredients

5 lbs. (2.27 kg) extra light dried malt extract
1 lb. (0.45 kg) 2-row pale malt
2 lbs. (0.9 kg) Vienna malt
0.5 lbs. (0.23 kg) crystal malt (40 °L)
0.33 lbs. (0.15 kg) Carapils® malt (6 °L)
11 AAU Centennial hops (45 min.)
(1 oz./28 g of 10% alpha acids)
11 AAU Centennial hops (30 min.)
(1 oz./28 g of 10% alpha acids)
0.5 oz. (14 g) Centennial hops (0 min.)
3 oz. (85 g) Centennial hops (dry hop)
½ tsp. Irish moss (15 min.)
Wyeast 1272 (American Ale II), White
Labs WLP051 (California V) or yeast
cultured from a bottle of this beer
¾ cups corn sugar (if priming)

Step by Step

Steep crushed grains in 1.2 gallons (4.6 L) of water at 152 °F (67 °C) for 45 minutes. Wash the grains with 1 gallon (3.8 L) hot water.

Add the dried malt extract then top off brewpot to 6 gallons (23 L) and bring to boil. Boil wort for 60 minutes, adding Centennial hops at the times indicated in the recipe. Ferment at 70 °C (21 °C). Dry hop for three days in secondary. Bottle or keg as normal

Boulevard Brewing Co.'s Pop Up Session IPA clone

(5 gallons/19 L, all-grain)
OG = 1.042 FG = 1.010
IBU = 41 SRM = 5 ABV = 4.2%

Ingredients

8.25 lbs. (3.7 kg) British pale ale malt
0.25 lbs. (113 g) amber malt
4 AAU Australian Topaz hop pellets (60 min.)
(0.25 oz./7 g at 16% alpha acids)
2.5 oz. (71 g) Cascade hop pellets (0 min.)
1.5 oz. (43 g) Citra® hop pellets (0 min.)
1.5 oz. (43 g) Mosaic™ hop pellets (0 min.)
1 oz. (28 g) Amarillo® hop pellets (dry hop)
1 oz. (28 g) Cascade hop pellets (dry hop)
0.25 oz. (7 g) Citra® hop pellets (dry hop)
0.25 oz. (7 g) Centennial hop pellets
(dry hop)
½ tsp. Irish moss (30 min.)
Wyeast 1098 (British Ale), White Labs
WLP007 (Dry English Ale), Safale S-04,
Mangrove Jack's M07 (British Ale), or
Lallemand Nottingham Ale yeast.
¾ cup corn sugar (if priming)

Step by Step

This is a single step infusion mash, mashing at 154 °F to 156 °F (68 °C to 69 °C) to create a fuller bodied beer. Mix all the crushed grains with 3.5 gallons (13 L) of 170 °F (77 °C) water and stabilize the mash at 156 °F (68 °C) for 60 minutes. Raise the mash temperature to 165 °F (74 °C) and sparge with enough 175 °F (79 °C) water to collect approximately 6 gallons (23 L) of wort. Boil the wort for 60 minutes. Add the first hop addition of Topaz at the beginning of the boil. Add the Irish moss for the last 30 minutes. Turn off the burner and remove the pot from the heat source. Add the first Cascade, Mosaic™ and Citra® hop additions and stir to mix in. After about three to four minutes, begin using your wort chiller to drop the temperature of the wort to 170 °F (77 °C) and hold for 15 minutes. After that time continue to chill to yeast pitching temperature. When you reach about 80 °F (27 °F), strain the wort into a fermenter. Aerate the wort and pitch the yeast. Ferment at 68 °F (20 °C). When fermentation is complete, rack the beer off the trub, add the dry hop additions and dry hop for four days. Bottle or keg as usual.



BOULEVARD BREWING CO.'S POP UP SESSION IPA CLONE

(5 gallons/19 L, extract with grains)
OG = 1.042 FG = 1.010
IBU = 41 SRM = 5 ABV = 4.2%

Ingredients

3.3 lbs. (1.5 kg) Briess light unhopped liquid malt extract
2 lbs. (0.9 kg) Briess light dried malt extract
0.25 lbs. (113 g) amber malt
4 AAU Australian Topaz hop pellets (60 min.) (0.25 oz./7 g at 16% alpha acids)
2.5 oz. (70 g) Cascade hop pellets (0 min.)
1.5 oz. (42 g) Citra® hop pellets (0 min.)
1.5 oz. (42 g) Mosaic™ hop pellets (0 min.)
1 oz. (28 g) Amarillo® hop pellets (dry hop)
1 oz. (28 g) Cascade hop pellets (dry hop)
0.25 oz. (7 g) Citra® hop pellets (dry hop)
0.25 oz. (7 g) Centennial hop pellets (dry hop)
½ teaspoon Irish moss (30 min.)
Wyeast 1098 (British Ale), White Labs WLP007 (Dry English Ale), Safale S-04, Mangrove Jack's M07 (British Ale), or Lallemend Nottingham Ale yeast.
¾ cup corn sugar (if priming)

Step by Step

Steep the crushed amber malt in 2.5 gallons (9.5 L) of water at 155 °F (68 °C) for 30 minutes. Remove the grains from the wort. Add the malt extracts and boil for 60 minutes. Add the first hop addition of Topaz at the beginning of the boil. Add the Irish moss for the last 30 minutes. Turn off the burner and remove your pot from your heat source. Add the first Cascade, Mosaic™ and Citra® hop additions and stir to mix in. After about three to four minutes, begin using your wort chiller to drop the temperature of the wort to 170 °F (77 °C) and hold for 15 minutes. After that time continue to chill to yeast pitching temperature. When you reach about 80 °F (27 °F), strain the wort into a fermenter. Aerate the wort and pitch the yeast. Ferment at 68 °F (20 °C). When fermentation is complete, rack the beer off the trub, add the remaining dry hop additions of Cascade, Centennial and Citra®, and dry hop for four days. Bottle or keg as usual.

Brewdog's Punk IPA clone

(5 gallons/19 L, all-grain)
OG = 1.056 FG = 1.015
IBU = 35 SRM = 3 ABV = 5.6%

Ingredients

11.6 lbs. (5.3 kg) Maris Otter extra pale malt (1.5 °L)

3 AAU Chinook hop pellets (60 min.) (0.25 oz./7 g at 12% alpha acids)
8 AAU Ahtanum™ hop pellets (0 min.) (1 oz./28 g at 8% alpha acids)
5 AAU Cascade hop pellets (0 min.) (1 oz./28 g at 5% alpha acids)
6 AAU Chinook hop pellets (0 min.) (0.5 oz./14 g at 12% alpha acids)
1 oz. (28 g) Amarillo® hop pellets (dry hop)
1 oz. (28 g) Simcoe® hop pellets (dry hop)
1 oz. (28 g) Nelson Sauvin hop pellets (dry hop)
White Labs WLP007 (Dry English Ale) or Wyeast 1098 (British Ale) yeast (1-qt./1-L yeast starter)
1 cup corn sugar (if priming)

Step by Step

Mash grains at 156 °F (69 °C) for 1 hour, and sparge to collect about 6 gallons (23 L) of wort. Boil for 60 minutes with Chinook hops adding at the start of boil and Ahtanum™, Cascade and Chinook hops at flameout. After turning off heat, give the wort a stir to create a whirlpool and let stand for 15 minutes.

Cool to yeast pitching temperature, and add yeast as a 1-quart (1 L) starter prepared two to three days earlier. Oxygenate well and let ferment for three to five days. Rack into a secondary fermenter and add dry hops in a sanitized muslin bag. Rack after one to two weeks and bottle or keg as usual.

BREWDOG'S PUNK IPA CLONE

(5 gallons/19 L, extract only)
OG = 1.056 FG = 1.015
IBU = 35 SRM = 5 ABV = 5.6%

Ingredients

3.6 lbs. (1.6 kg) extra light dried malt extract
3.3 lbs. (1.5 kg) golden liquid malt extract (15 min.)
3 AAU Chinook hop pellets (60 min.) (0.25 oz./7 g at 12% alpha acids)
8 AAU Ahtanum™ hop pellets (0 min.) (1 oz./28 g at 8% alpha acids)
5 AAU Cascade hop pellets (0 min.) (1 oz./28 g at 5% alpha acids)
6 AAU Chinook hop pellets (0 min.) (0.5 oz./14 g at 12% alpha acids)
1 oz. (28 g) Amarillo® hop pellets (dry hop)
1 oz. (28 g) Simcoe® hop pellets (dry hop)
1 oz. (28 g) Nelson Sauvin hop pellets (dry hop)
White Labs WLP007 (Dry English Ale) or Wyeast 1098 (British Ale) yeast (1-qt./1-L yeast starter)
1 cup corn sugar (if priming)

Step by Step

To get an acceptable level of hop utilization, and the correct amount of bitterness in your beer, you must be able to boil at least

3.5 gallons (13 L) of wort. Begin by heating 3.5 gallons (13 L) of water in your brewpot. As the water reaches a boil, turn off heat and stir in the dried malt extract. Once the extract is fully dissolved, return to heat. Boil for 60 minutes adding the Chinook hops at start of the boil. Stir in liquid malt extract for the final 15 minutes of the boil. (Keep a pot of boiling water handy and add water if brewpot volume drops below 3.5 gallons/13 L). Add the Ahtanum™, Cascade and Chinook hops at flameout. After turning off heat, give the wort a stir to create a whirlpool and let stand for 15 minutes.

Cool wort, transfer to fermenter and top up to 5 gallons (19 L) with cool water. Add yeast from 1-quart (1-L) yeast starter prepared two to three days earlier. Oxygenate well and let ferment for three to five days. Rack into a secondary fermenter and add dry hops in a sterilized muslin bag. Rack after one to two weeks and bottle or keg as usual.

Citra SMaSH IPA

(5 gallons/19 L, all-grain)
OG = 1.060 FG = 1.012
IBU = 45 SRM = 5 ABV = 6.4%

Ingredients

12 lbs. (5.4 kg) Maris Otter pale ale malt
12 AAU Citra® hops (60 min.) (1 oz./28 g of 12% alpha acid)
1 oz. (28 g) Citra® hops (0 min.)
1 oz. (28 g) Citra® hops (dry hop)
½ tsp. Irish moss (10 min.)
White Labs WLP001 (California Ale), Wyeast 1056 (American Ale), or Safale US-05 yeast
¾ cup corn sugar (if priming)

Step by Step

Heat 15 qts. (14 L) of water to 165 °F (74 °C) to achieve a mash temperature of 150 °F (66 °C). Hold the mash at 150 °F (66 °C) for 60 minutes, or until conversion is complete. Sparge slowly with 170 °F (77 °C) water, collecting wort until the pre-boil kettle volume is around 6.5 gallons (24.6 L). Boil the wort for 75 minutes. Add the first hop addition at 60 minutes left in the boil and the Irish moss with 10 minutes remaining in the boil. Add the second addition of hops at the end of the boil.

Chill the wort to 65 °F (18 °C), let the break material settle, rack to the fermenter, pitch the yeast and aerate thoroughly. Ferment at 68 °F (20 °C). After primary fermentation has died down, add the dry hop addition. After two days of dry hopping, rack the finished beer off the dry hops and bottle or keg.



CITRA SMASH IPA

(5 gallons/19 L, extract only)
OG = 1.060 FG = 1.012
IBU = 45 SRM = 5 ABV = 6.4%

Ingredients

8.5 lbs. (3.9 kg) Maris Otter liquid malt extract
12 AAU Citra® hops (60 min.)
(1 oz./28 g of 12% alpha acid)
1 oz. (28 g) Citra® hops (0 min.)
1 oz. (28 g) Citra® hops (dry hop)
White Labs WLP001 (California Ale),
Wyeast 1056 (American Ale), or
Safale US-05 yeast
¾ cup corn sugar (if priming)

Step by Step

Heat 5 gallons (19 L) of brewing water to a boil. Remove the brewpot from the heat to add the liquid malt extract being careful not to scorch it. Stir the wort until the extract is fully dissolved, then return to a boil. Watch the pot and continue to stir to avoid scorching. Boil the wort for 60 minutes. Add the first hop addition at 60 minutes left in the boil. Add the second addition of hops at the end of the boil.

Chill the wort to 65 °F (18 °C), let the break material settle, rack to the fermenter, pitch the yeast and aerate thoroughly. Ferment at 68 °F (20 °C). After primary fermentation has died down, add the dry hop addition. After two days of dry hopping, rack the finished beer off the dry hops and bottle or keg.

Dogfish Head Brewing Co.'s 60-Minute IPA clone

(5 gallons/19 L, all-grain)
OG = 1.064 FG = 1.019
IBU = 60 SRM = 6 ABV = 6%

Ingredients

13 lbs. (5.9 kg) 2-row pale malt
6.4 oz. (0.18 kg) Thomas Fawcett amber malt (35 °L)
11.2 AAU Warrior® hops (60–35 min.)
(0.7 oz./20 g at 16% alpha acids)
3.6 AAU Simcoe® hops (35–0 min.)
(0.7 oz./20 g at 13% alpha acids)
5.6 AAU Amarillo® hops (35–0 min.)
(0.7 oz./20 g at 8% alpha acids)
0.7 oz. (20 g) Amarillo® hops (0 min.)
1 oz. (28 g) Amarillo® hops (dry hop)
0.5 oz. (14 g) Simcoe® hops (dry hop)
1 tsp. Irish moss (15 min.)
Wyeast 1187 (Ringwood Ale) or
White Labs WLP005 (British Ale) yeast
(1.5 qt./~1.5 L starter @ SG 1.030)
¾ cup corn sugar (for priming)

Step by Step

Mash at 152 °F (67 °C) for 60 minutes. Boil wort for 60 minutes. Begin hopping wort with a continuous stream of Warrior® hops at a rate of 0.28 oz. (7.9 g) per 10 minutes. Warrior® should run out with 35 minutes left in boil. Refill hopper with Simcoe® and Amarillo® hops and resume hopping until the end of the boil. Add Irish moss with 15 minutes remaining. Add the 0 minute hops after boil and begin cooling. Aerate cooled wort and pitch yeast. Ferment initially at 71 °F (22 °C), but let temperature rise to 74 °F (23 °C) towards the end of fermentation. Warm condition for 3 days (to remove diacetyl), then cool beer and add dry hops, allowing two weeks contact time. Bottle or keg as usual.

DOG FISH HEAD BREWING CO.'S 60-MINUTE IPA CLONE

(5 gallons/19 L, partial mash)
OG = 1.064 FG = 1.019
IBU = 60 SRM = 6 ABV = 6%

Ingredients

1.5 lbs. (0.68 kg) 2-row pale malt
6.4 oz. (0.18 kg) Thomas Fawcett amber malt (35 °L)
4 lbs. (1.8 kg) Muntons light dried malt extract
2 lbs. 14 oz. (1.3 kg) Muntons light liquid malt extract (15 min.)
11.2 AAU Warrior® hops (60–35 min.)
(0.7 oz./20 g at 16% alpha acids)
3.6 AAU Simcoe® hops (35–0 min.)
(0.7 oz./20 g at 13% alpha acids)
5.6 AAU Amarillo® hops (35–0 min.)
(0.7 oz./20 g at 8% alpha acids)
0.7 oz. (20 g) Amarillo® hops (0 min.)
1 oz. (28 g) Amarillo® hops (dry hop)
0.5 oz. (14 g) Simcoe® hops (dry hop)
1 tsp. Irish moss (15 min.)
Wyeast 1187 (Ringwood Ale) or
White Labs WLP005 (British Ale) yeast
(1.5 qt./~1.5 L starter @ SG 1.030)
¾ cup corn sugar (for priming)

Step by Step

Steep crushed malt at 152 °F (67 °C) in 2.25 qts. (2.1 L) of water. This is a partial mash, so follow temperature and volume guidelines closely. After 45 minutes, rinse grains with 1 qt. (~1 L) of 170 °F (77 °C) water. Add water to “grain tea” to make 4 gallons (15 L). To save time, heat ~3.5 gallons/13 L of water during “steep.” Stir in the dried malt extract and bring to a boil. During the boil, do not let wort volume drop below 3.5 gallons (13 L). Add boiling water if wort volume dips near this mark. Begin hopping wort with a continuous stream of Warrior® hops at a rate of 0.28 oz. (7.9 g) per 10 minutes. War-

rior® should run out with 35 minutes left in boil. Refill hopper with Simcoe® and Amarillo® hops and resume hopping until the end of the boil. With 15 minutes left in the boil, turn off the heat and stir in liquid malt extract and Irish moss. Resume heating once extract is dissolved. After the boil is complete, add 0 minute hops and begin cooling. After chilled wort is transferred to fermenter, add water to make 5 gallons (19 L). Ferment initially at 71 °F (22 °C), but let temperature rise to 74 °F (23 °C) towards the end of fermentation. Warm condition for three days (to remove diacetyl), then cool beer and add dry hops, allowing two weeks contact time. Bottle or keg as usual.

El Dorado IPA

(5 gallons/19 L, all-grain)
OG = 1.066 FG = 1.012
IBU = 60 SRM = 7 ABV = 7.4%

Ingredients

10 lbs. (4.5 kg) 2-row pale malt
3.5 lbs. (1.6 kg) light Munich malt (6 °L)
0.5 lb. (0.45 kg) dextrin malt
7.5 AAU El Dorado® hops (60 min.)
(0.5 oz./14 g at 15% alpha acids)
18 AAU El Dorado® pellet hops (15 min.)
(1.2 oz./34 g at 15% alpha acids)
18 AAU El Dorado® hops (0 min.)
(1.2 oz./34 g at 15% alpha acids)
2.5 oz. (71 g) El Dorado® pellet hops
(dry hop)
1 tsp. Irish moss (15 min.)
Wyeast 1028 (London Ale), White
Labs WLP013 (London Ale), or
Lallemand Nottingham yeast
¾ cups corn sugar (if priming)

Step by Step

Mash at 152–154 °F (67–78 °C). Boil 60 minutes, adding hops and Irish moss at times indicated. After adding the flameout hops stir the wort for about a minute to create a whirlpool and let it spin and settle out for 15 minutes before chilling. Ferment at 68 °F (20 °C). After primary fermentation dies down, add the dry hops and wait three to six days before bottling or kegging.

EL DORADO IPA

(5 gallons/19 L, extract with grains)
OG = 1.066 FG = 1.012
IBU = 60 SRM = 7 ABV = 7.4%

Ingredients

9 lbs. (4.1 kg) Maris Otter liquid malt extract
0.5 lb. (0.32 kg) dextrin malt
7.5 AAU El Dorado® hops (60 min.)
(0.5 oz./14 g at 15% alpha acids)
18 AAU El Dorado® hops (15 min.)



(1.2 oz./34 g at 15% alpha acids)
 18 AAU El Dorado® pellet hops (0 min.)
 (1.2 oz./34 g at 15% alpha acids)
 2.5 oz. (71 g) El Dorado® pellet hops
 (dry hop)
 1 tsp. Irish moss (15 min.)
 Wyeast 1028 (London Ale), White
 Labs WLP013 (London Ale), or
 Lallemand Nottingham yeast
 ¾ cups corn sugar (if priming)

Step by Step

Steep crushed malt in 2.5 qts. (2.4 L) of water at 160°F (71 °C) for 20 minutes. Add the liquid malt extract off heat and stir until fully dissolved. Bring volume up 6 gallons (23 L) and raise to a boil. Boil 60 minutes adding hops and Irish moss at the time indicated. Post boil, stir the wort for about a minute to create a whirlpool and let it spin and settle out for 15 minutes before chilling. Ferment at 68 °F (20 °C). After primary fermentation dies down, add the dry hops three to six days before bottling or kegging.

Fort George Brewery's Suicide Squeeze IPA clone

(5 gallons/19 L, all-grain)
 OG = 1.044 FG = 1.008
 IBU = 48 SRM = 6 ABV = 4.7%

Ingredients

8.4 lbs. (3.8 kg) 2-row pale malt
 0.25 lb. (113 g) crystal malt (40 °L)
 0.5 lb. (0.23 kg) flaked oats
 2.8 AAU Mosaic™ hop pellets (60 min.)
 (0.25 oz./7 g at 11% alpha acids)
 8.3 AAU Mosaic™ hop pellets (15 min.)
 (0.75 oz./21 g at 11% alpha acids)
 6.5 AAU Citra® hop pellets (15 min.)
 (0.5 oz./14 g at 13% alpha acids)
 2 oz. (57 g) Mosaic™ hop pellets (0 min.)
 2.5 oz. (71 g) Mosaic™ hop pellets (dry hop)
 0.25 oz. (7 g) Citra® hop pellets (dry hop)
 ½ tsp. Irish moss (30 min.)
 Wyeast 1968 (London ESB),
 White Labs WLP002 (English Ale), or
 Lallemand Windsor Ale yeast
 ¾ cup corn sugar (if priming)

Step by Step

This is a single step infusion mash, mashing at 154 to 156 °F (68 to 69 °C) to create a fuller-bodied beer. Mix all the crushed grains with 3.5 gallons (13 L) of 170 °F (77 °C) water and stabilize the mash at 156 °F (68 °C) for 60 minutes. Raise your mash temperature to 165 °F (74 °C) and sparge with enough 175 °F (79 °C) water to collect approximately 6 gallons (23 L) of wort. Boil this wort for 60 minutes. Add the first hop

addition of Mosaic™ at the beginning of the boil primarily as a foam inhibitor. Add the Irish moss for the last 30 minutes. With 15 minutes left in the boil, add the second Mosaic™ and first Citra® hop addition. At the end of the boil, insert a wort chiller and begin cooling your wort. As soon as you begin chilling your wort, add 2 oz. (56 g) of Mosaic™ hops, stirring them in the wort while you are cooling the wort. You would like to have these hops in the wort with the temperature between boiling and around 150 °F (66 °C) for close to five minutes. When you have cooled the wort to about 80 °F (27 °C), you can strain the wort into a fermenter. Aerate the wort and pitch the yeast. Ferment at 70 °F (21 °C). When fermentation is complete, rack the beer off the trub and add the remaining dry hop additions of Mosaic™ and Citra®. Allow the beer to absorb the dry hop flavors for about four days. Bottle or keg as normal.

FORT GEORGE BREWERY'S SUICIDE SQUEEZE IPA CLONE

(5 gallons/19 L, extract with grains)
 OG = 1.044 FG = 1.008
 IBU = 48 SRM = 6 ABV = 4.7%

Ingredients

3.3 lbs. (1.5 kg) Briess unhoppled Pilsen
 liquid malt extract
 2 lbs. (0.9 kg) Briess light dried malt extract
 0.25 lb. (113 g) crystal malt (40 °L)
 0.5 lb. (0.23 kg) flaked oats
 2.8 AAU Mosaic™ hop pellets (60 min.)
 (0.25 oz./7 g at 11% alpha acids)
 8.3 AAU Mosaic™ hop pellets (15 min.)
 (0.75 oz./22 g at 11% alpha acids)
 9.7 AAU Citra® hop pellets (15 min.)
 (0.75 oz./21 g at 13% alpha acids)
 2 oz. (57 g) Mosaic™ hop pellets (0 min.)
 2.5 oz. (71 g) Mosaic™ hop pellets (dry hop)
 0.25 oz. (7 g) Citra® hop pellets (dry hop)
 ½ tsp. Irish moss (30 min.)
 Wyeast 1968 (London ESB),
 White Labs WLP002 (English Ale), or
 Lallemand Windsor Ale yeast
 ¾ cup corn sugar (if priming)

Step by Step

Steep the crushed grain in 2.5 gallons (9.5 L) of water at 155 °F (68 °C) for 30 minutes. Remove the grains from the wort. Add the malt extracts and boil for 60 minutes. Add the first hop addition of Mosaic™ at the beginning of the boil primarily as a foam inhibitor. Add the Irish moss for the last 30 minutes. With 15 minutes left in the boil, add the second Mosaic™ and first Citra® hop addition. At the end of the boil, insert a wort chiller and begin cooling the wort. As soon as you begin chilling the wort, add

2 oz. (56 g) of Mosaic™ hops, stirring them in the wort while you are cooling the wort. You would like to have these hops in the wort with the temperature between boiling and around 150 °F (66 °C) for close to five minutes. When you have cooled your wort to about 80 °F (27 °C), you can strain the wort into a fermenter and top off to 5 gallons (19 L). Aerate the wort and pitch the yeast. Ferment at 70 °F (21 °C). When fermentation is complete, rack the beer off the trub and add the remaining dry hop additions of Mosaic™ and Citra®. Allow the beer to absorb the dry hop flavors for about four days. Bottle or keg as you normally would.

Tips for Success:

Flaked grains such as flaked oats (as used in this recipe) or flaked wheat can provide extra mouthfeel, which can help balance a beer with higher hops and lower alcohol. Flaked grains technically should be mashed, or partial mashed to convert the starch. In the extract with grains version of this recipe, the grains are steeped at 155 °F (68 °C). This will not convert the starch in the grains, but it will still increase the mouthfeel (but may also leave some haze behind.)

Harpoon Brewery's Harpoon IPA clone

(5 gallons/19 L, all-grain)
 OG = 1.057 FG = 1.013
 IBU = 42 SRM = 7 ABV = 5.9%

Ingredients

10 lbs. (4.5 kg) 2-row pale malt
 1.5 lbs. (0.68 kg) Munich malt (10 °L)
 0.5 lbs. (0.23 kg) Briess Victory® malt
 7.8 AAU Columbus hops (60 min.)
 (0.6 oz./17 g at 13% alpha acids)
 5 AAU Cascade hops (10 min.)
 (1 oz./28 g at 5% alpha acids)
 5 AAU Cascade hops (0 min.)
 (1 oz./28 g at 5% alpha acids)
 1.5 oz. (43 g) Cascade hops (dry hop)
 1 tsp. Irish moss (15 min.)
 White Labs WLP007 (Dry English Ale),
 Wyeast 1098 (British Ale), or
 Lallemand Nottingham yeast
 ¾ cup corn sugar (if priming)

Step by Step

Mash grains together for 60 minutes at 152 °F (67 °C) in 4 gallons (15 L) of mash water. Collect 6.5 gallons (25 L) and boil for 90 minutes. Add hops according to the schedule and Irish moss with 15 minutes left in the boil. When done boiling, let the wort settle for 10 minutes then begin cooling. Aerate wort and pitch yeast. Ferment at 68 °F (20 °C) until complete (7 to 10 days).



After fermentation is complete, transfer beer to secondary and add dry hops. Let these hops sit in the beer for about a week to enhance the hop aroma, then separate the hops from the beer and bottle as usual.

HARPOON BREWERY'S HARPOON IPA CLONE

(5 gallons/19 L, partial mash)
OG = 1.057 FG = 1.013
IBU = 42 SRM = 7 ABV = 5.9%

Ingredients

2.7 lbs. (1.2 kg) light dried malt extract
3.3 lbs. (1.5 kg) light liquid malt extract (15 min.)
1.5 lb. (0.68 kg) Munich malt (10 °L)
0.5 lb. (0.23 kg) Briess Victory® malt
7.8 AAU Columbus hops (60 min.)
(0.6 oz./17 g at 13% alpha acids)
5 AAU Cascade hops (10 min.)
(1 oz./28 g at 5% alpha acids)
5 AAU Cascade hops (0 min.)
(1 oz./28 g at 5% alpha acids)
1.5 oz. (43 g) Cascade hops (dry hop)
1 tsp. Irish moss (15 min.)
White Labs WLP007 (Dry English Ale),
Wyeast 1098 (British Ale), or
Lallemand Nottingham yeast
¾ cup corn sugar (if priming)

Step by Step

Place crushed malts in a nylon steeping bag and steep in 3 qts. (2.8 L) of water at 152 °F (67 °C) for 30 minutes. Rinse grains with 1.5 qts. (~1.5 L) of water at 170 °F (77 °C). Add water to make 3 gallons (11 L), stir in dried malt extract and bring to a boil. Add hops according to the schedule and Irish moss with 15 minutes left in the boil.

When done boiling, let the wort settle for 10 minutes then begin cooling. Transfer to fermenter and top up to 5 gallons (19 L) with cool water. Aerate wort and pitch yeast. Ferment at 68 °F (20 °C) until complete (7 to 10 days). After fermentation is complete, transfer beer to secondary and add dry hops. Let these hops sit in the beer for about a week to enhance the hop aroma, then separate the hops from the beer and bottle as usual.

Hop Skip & a Jump American IPA

(5 gallons/19 L, all-grain)
OG = 1.069 FG = 1.017
IBU = 66 SRM = 7 ABV = 7.2%

Ingredients

12 lbs. (5.45 kg) 2-row pale malt
2 lbs. (0.9 kg) Munich malt (10 °L)
0.5 lb. (0.23 kg) crystal malt (15 °L)
13.1 AAU Columbus hops (60 min.)

(0.85 oz./24 g at 15.4% alpha acids)
4 AAU Amarillo® hops (30 min.)
(0.5 oz./14 g at 8% alpha acids)
6.5 AAU Simcoe® hops (10 min.)
(0.5 oz./14 g at 13% alpha acids)
4 AAU Amarillo® hops (0 min.)
(0.5 oz./14 g at 8% alpha acids)
1 oz. (28 g) Simcoe® hops (dry hop)
1 oz. (28 g) Amarillo® hops (dry hop)
1 tsp. Irish moss (15 min.)
White Labs WLP001 (California Ale),
Wyeast 1056 (American Ale), or
Safale US-05 yeast
(2.25 qt./~2.25 L yeast starter)
¾ cup corn sugar (if priming)

Step by Step

Mill the grains. Dough in using 4.5 gallons (17 L) of water with a target mash temperature of 150 °F (65 °C). Hold the mash temperature for approximately 60 minutes or until the conversion is complete. Raise the temperature of the mash to 168 °F (76 °C) and begin sparging with 170 °F (77 °C) water until you collect 6 (23 L) gallons of wort in the kettle. The total wort boiling time for this recipe is 60 minutes. Make additions according to the ingredient list.

Cool the wort to 70 °F (21 °C), transfer to your fermenter and aerate the wort adequately before pitching your yeast. Ferment around 70 °F (21 °C) until the final gravity is reached, which should be in five to seven days. Rack to a secondary vessel and allow the beer to mature another five to seven days around the same temperature. Your beer is now ready to rack into a keg or bottles along with the priming sugar.

HOP SKIP & A JUMP AMERICAN IPA

(5 gallons/19 L, extract with grains)
OG = 1.069 FG = 1.017
IBU = 66 SRM = 8 ABV = 7.2%

Ingredients

8.25 lbs. (3.75 kg) golden liquid malt extract
1 lb. (0.45 kg) Munich liquid malt extract (10 °L)
0.5 lb. (0.23 kg) crystal malt (15 °L)
13.1 AAU Columbus hops (60 min.)
(0.85 oz./24 g at 15.4% alpha acids)
4 AAU Amarillo® hops (30 min.)
(0.5 oz./14 g at 8% alpha acids)
6.5 AAU Simcoe® hops (10 min.)
(0.5 oz./14 g at 13% alpha acids)
4 AAU Amarillo® hops (0 min.)
(0.5 oz./14 g at 8% alpha acids)
1 oz. (28 g) Simcoe® hops (dry hop)
1 oz. (28 g) Amarillo® hops (dry hop)
1 tsp. Irish moss (15 min.)
White Labs WLP001 (California Ale),
Wyeast 1056 (American Ale), or
Safale US-05 yeast

(2.25 qt./~2.25 L yeast starter)
¾ cup corn sugar (if priming)

Step by Step

Mill the specialty grains. Place the milled grains in a grain bag and steep them in 2 gallons (8 L) of 150 °F (66 °C) water for 30 minutes. Rinse the grain bag with about 2 quarts (2 L) of water and allow it to drip into the kettle. Add enough water for a pre-boil volume of 6 gallons (23 L). (If you cannot perform a full-wort boil, boil at least 4 gallons/15 L of wort and reserve about half of the malt extract for the final 15 minutes of the boil.) Stir in the malt extracts and begin the boil. The total wort boiling time for this recipe is 60 minutes. Make additions according to the ingredient list.

Cool the wort to 70 °F (21 °C), transfer to your fermenter and aerate the wort adequately before pitching your yeast. Ferment around 70 °F (21 °C) until the final gravity is reached, which should be in five to seven days. Rack to a secondary vessel and allow the beer to mature another five to seven days around the same temperature. Your beer is now ready to rack into a keg or bottles along with the priming sugar.

Hoppiness is an IPA

(5 gallons/19 L, all-grain)
OG = 1.065 FG = 1.012
IBU = 65 SRM = 8 ABV = 7.2%

Ingredients

11.5 lbs. (5.2 kg) pale ale malt
14.1 oz. (0.4 kg) crystal malt (15 °L)
10.6 oz. (0.3 kg) Munich malt
3.5 oz. (0.1 kg) crystal malt (40 °L)
10.9 AAU Horizon hops (60 min.)
(0.84 oz./24 g at 13% alpha acids)
7.6 AAU Centennial hops (10 min.)
(0.84 oz./24 g at 9% alpha acids)
10.1 AAU Simcoe® hops (5 min.)
(0.84 oz./24 g at 12% alpha acids)
7.6 AAU Amarillo® hops (0 min.)
(0.84 oz./24 g at 9% alpha acids)
White Labs WLP001 (California Ale) or
Wyeast 1056 (American Ale) or
Safale US-05 yeast
¾ cup corn sugar (if priming)

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 149 °F (65 °C). Hold the mash at 149 °F (65 °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 1.055.

Once the wort is boiling, add the bittering hops. The total wort boil time is 1 hour after adding the bittering hops. During that time add the Irish moss or other kettle finings with 15 minutes left in the boil and add the last three hop additions at 10 minutes remaining, 5 minutes remaining and at flame out. Chill the wort to 67 °F (19 °C) and aerate thoroughly. The proper pitch rate is 11 grams of properly rehydrated dry yeast, two packages of liquid yeast, or one package of liquid yeast in a 2.5-liter starter. Ferment around 67 °F (19 °C) until the yeast drops clear. With healthy yeast, fermentation should be complete in a week or less. Allow the lees to settle and the brew to mature without pressure for another two days after fermentation appears finished. Rack to a keg and force carbonate or rack to a bottling bucket, add priming sugar and bottle.

HOPPINESS IS AN IPA

(5 gallons/19 L, extract plus grains)
OG = 1.065 FG = 1.012
IBU = 65 SRM = 8 ABV = 7.2%

Ingredients

8 lbs. (3.6 kg) pale ale liquid malt extract
14.1 oz. (0.4 kg) crystal malt (15 °L)
10.6 oz. (0.3 kg) Munich malt
3.5 oz. (0.1 kg) crystal malt (40 °L)
10.9 AAU Horizon hops (60 min.)
(0.84 oz./24 g at 13% alpha acids)
7.6 AAU Centennial hops (10 min.)
(0.84 oz./24 g at 9% alpha acids)
10.1 AAU Simcoe® hops (5 min.)
(0.84 oz./24 g at 12% alpha acids)
7.6 AAU Amarillo® hops (0 min.)
(0.84 oz./24 g at 9% alpha acids)
White Labs WLP001 (California Ale),
Wyeast 1056 (American Ale), or
Safale US-05 yeast
⅓ cup corn sugar (if priming)

Step by Step

If you can't get fresh liquid malt extract, use an appropriate amount of dried malt extract instead.

Mill or coarsely crack the specialty malt and place loosely in a grain bag. Avoid packing the grains too tightly in the bag, using more bags if needed. Steep the bag in about 1 gallon (~4 liters) of water at roughly 170 °F (77 °C) 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 for a few minutes while you add the malt extract. Do not squeeze the bags. 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 1.055 (13.6 °P). Stir thoroughly to help dissolve the extract 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. During that time add the Irish moss or other kettle finings with 15 minutes left in the boil and add the last three hop additions at 10 minutes remaining, 5 minutes remaining and at flame out. Chill the wort to 67 °F (19 °C) and aerate thoroughly. The proper pitch rate is 11 grams of properly rehydrated dry yeast, two packages of liquid yeast, or one package of liquid yeast in a 2.5-liter starter. Follow the fermentation and packaging instructions for the all-grain version.

Hoppy Days IPAYYEE

(5 gallons/19 L, all-grain)
OG = 1.075 FG = 1.020
IBU = 100+ SRM = 5 ABV = 7.7%

Ingredients

14.4 lbs. (6.5 kg) 2-row pale malt (1.8 °L)
1 lb. (0.45 kg) dextrin malt (2 °L)
6 oz. (0.17 kg) caramel malt (10 °L)
28 AAU Columbus hops (60 min.)
(2 oz./57 g at 14% alpha acids)
28 AAU Columbus hops (20 min.)
(2 oz./57 g at 14% alpha acids)
11 AAU Cascade hops (15 min.)
(2 oz./57 g at 5.5% alpha acids)
10.8 AAU Hallertauer hops (10 min.)
(2 oz./57 g at 5.4% alpha acids)
10.8 AAU Hallertauer hops (5 min.)
(2 oz./57 g at 5.4% alpha acids)
2 oz. (57 g) Cascade hops (dry hop)
Wyeast 1056 (American Ale), White
Labs WLP001 (California Ale) or
Safale US-05 yeast
⅓ cup corn sugar (if priming)

Step by Step

Heat 18.4 quarts (17.5 L) strike water to 161 °F (72 °C) in order to stabilize the mash at 152 °F (67 °C). Hold at this temperature for 60 minutes. Raise mash to 168 °F (76 °C) and begin to laut. Bring wort to a boil, adding hops at times indicated. After finished with the 60 minutes of boiling, cool the wort to 68 °F (20 °C) and pitch yeast. Ferment at 68 °F (20 °C) for 14 days. Dry hop the beer after the first seven days and let rest another seven days before bottling or kegging.

HOPPY DAYS IPAYYEE

(5 gallons/19 L, extract with grains)
OG = 1.075 FG = 1.020
IBU = 100+ SRM = 5 ABV = 7.7%

Ingredients

7.7 lbs. (3.5 kg) extra light dried malt extract
1 lb. (0.45 kg) dextrin malt (2 °L)
6 oz. (0.17 kg) caramel malt (10 °L)
28 AAU Columbus hops (60 min.)
(2 oz./57 g at 14% alpha acids)
28 AAU Columbus hops (20 min.)
(2 oz./57 g at 14% alpha acids)
11 AAU Cascade hops (15 min.)
(2 oz./57 g at 5.5% alpha acids)
10.8 AAU Hallertauer hops (10 min.)
(2 oz./57 g at 5.4% alpha acids)
10.8 AAU Hallertauer hops (5 min.)
(2 oz./57 g at 5.4% alpha acids)
2 oz. (57 g) Cascade hops (dry hop)
Wyeast 1056 (American Ale), White
Labs WLP001 (California Ale) or
Safale US-05 yeast
⅓ cup corn sugar (if priming)

Step by Step

Place the crushed grain in a muslin bag and steep for 20 minutes at 160 °F (71 °C) in 1 gallon (3.8 L) water. Remove the grain bag and wash with 2 qts (2 L) hot water. Top off the brew pot to 5 gallons (19 L) and bring wort to a boil. Turn off heat and add the dried malt extract. Stir until completely dissolved then return to heat. Boil for 60 minutes, adding hops at times indicated. After the boil, cool the wort to 68 °F (20 °C) and pitch yeast. Ferment at 68 °F (20 °C) for 14 days. Dry hop the beer after the first seven days and let rest another seven days before bottling or kegging.

inSANTIAM IPA

(5 gallons/19 L, all-grain)
OG = 1.072 FG = 1.014
IBU = 64 SRM = 5 ABV = 8%

Ingredients

10 lbs. (4.5 kg) Pilsner 2-row malt
4 lbs. (1.8 kg) 2-row pale malt
1 lb. (0.45 kg) dextrin malt
11 AAU Santiam hops (60 min.)
(2 oz./57 g at 5.5% alpha acids)
11 AAU Santiam hops (15 min.)
(2 oz./57 g at 5.5% alpha acids)
11 AAU Santiam hops (5 min.)
(2 oz./57 g at 5.5% alpha acids)
2 oz. (57 g) Santiam hops (dry hop)
1 tsp. Irish moss (15 min.)
Wyeast 1056 (American Ale), White
Labs WLP001 (California Ale) or,
Safale US-05 yeast
⅓ cup corn sugar (if priming)

Step by Step

This is a single step infusion mash. Mash the grains at 156 °F (69 °C) for 40 minutes, then raise mash temperature to 168 °F (76 °C)



over 10 minutes and rest at 168 °F (76 °C) for another 10 minutes. Sparge with 175 °F (79 °C) water. Collect 7 gallons (26.5 L) of wort in boil kettle. This will be a 90-minute boil due to the amount of Pilsner malt to help drive off Di-Methyl Methionine (DMS). Add other ingredients as indicated in the ingredients list. Once the boil is complete, chill the wort to 75 °F (24 °C) and transfer to fermenting vessel. Aerate the wort and pitch the rehydrated yeast. Ferment at 68 °F (20 °C) for seven days and then add dry hops. For kegging, I leave dry hops for 14 days, cold crash the beer and transfer to keg on 12 psi. For bottling, transfer to secondary fermenter after seven days and then bottle with priming sugar. Allow beer to carbonate and age for two more weeks.

INSANTIAM IPA

(5 gallons/19 L, extract with grains)

OG = 1.072 FG = 1.014

IBU = 64 SRM = 5 ABV = 8%

Ingredients

6.6 lbs. (3 kg) Pilsen liquid malt extract
2.2 lbs. (1 kg) light dried malt extract
1 lb. (0.45 kg) dextrin malt
11 AAU Santiam hops (60 min.)
(2 oz./57 g at 5.5% alpha acids)
11 AAU Santiam hops (15 min.)
(2 oz./57 g at 5.5% alpha acids)
11 AAU Santiam hops (5 min.)
(2 oz./57 g at 5.5% alpha acids)
2 oz. (57 g) Santiam hops (dry hop)
1 tsp. Irish moss (15 min.)
Wyeast 1056 (American Ale), White
Labs WLP001 (California Ale) or,
Safale US-05 yeast
¾ cup corn sugar (if priming)

Step by Step

Place crushed grains in a steeping bag and soak in 1 gallon (3.8 L) of 156 °F (69 °C) water for 30 minutes. Remove the grain from the wort and place in a colander over the brewpot. Rinse grain bag with 2 qts. (1.9 L) of 170 °F (77 °C) water. Bring 6 gallons (23 L) of wort to a boil. This will be a 60-minute boil, making sure the liquid malt extract is added off heat to avoid scorching. Add other ingredients as indicated in the ingredients list.

Once the boil is complete, chill the wort to 75 °F (24 °C) and transfer it to the primary fermenting vessel. Aerate the wort and pitch the rehydrated yeast. Ferment at 68 °F (20 °C) for seven days and then add dry hops. For kegging, I leave the dry hops in for 14 days, cold crash the beer and transfer to keg on 12 PSI. For bottling, transfer to secondary fermenter after seven days and then bottle with priming sugar. Allow beer to carbonate and age for two more weeks.

Klaus Brau's Kitchen Sink IPA

(5 gallons/19 L, all-grain)

OG = 1.060 FG = 1.013

IBU = 67 SRM = 8 ABV = 6.2%

Ingredients

7 lbs. (3.18 kg) 2-row pale malt
3.5 lbs. (1.59 kg) Optic pale ale malt
2.9 lbs. (1.32 kg) Vienna malt
0.6 lb. (0.27 kg) crystal malt (40 °L)
14 AAU Magnum hops (60 min.)
(1 oz./28 g at 14% alpha acids)
5 AAU Centennial hops (30 min.)
(0.5 oz./14 g at 10% alpha acids)
5 AAU Centennial hops (15 min.)
(0.5 oz./14 g at 10% alpha acids)
3.5 AAU Cascade hops (5 min.)
(0.5 oz./14 g at 7% alpha acids)
0.5 oz. (14 g) Centennial hops (0 min.)
0.5 oz. (14 g) Cascade hops (0 min.)
0.5 oz. (14 g) Amarillo® hops (dry hop)
1 oz. (28 g) Simcoe® hops (dry hop)
0.5 oz. (14 g) Centennial hops (dry hop)
0.5 oz. (14 g) Cascade hops (dry hop)
White Labs WLP001 (California Ale),
Wyeast 1056 (American Ale), or
Safale US-05 yeast
¾ cup corn sugar (if priming)

Step by Step

Make a yeast starter if using a liquid strain a day or two before brew day. On brew day perform a single infusion mash. Mash in at 152 °F (67 °C) in 4.4 gallons (16.6 L) of water. Hold this temperature for 60 minutes. Sparge with 180 °F (82 °C) water to collect 7 gallons (26.5 L) of wort. Boil for 60 minutes, adding hops at times indicated. The goal is to get 5.5 gallons (21 L) into your fermenter. Chill the wort to 64 °F (18 °C). Ferment between 64–68 °F (18–20 °C). Transfer to a secondary vessel after primary fermentation is complete. Dry hop for one week with 0.5 oz. (14 g) Amarillo®, 0.5 oz. (14 g) Simcoe®, and 0.5 oz. (14 g) Centennial hops. After one week dry hop again with 0.5 oz. (14 g) Simcoe® and 0.5 oz. (14 g) Cascade hops. Prime to 2.3 volumes of CO₂.

KLAUS BRAU'S KITCHEN SINK IPA

(5 gallons/19 L, extract with grains)

OG = 1.060 FG = 1.013

IBU = 67 SRM = 8 ABV = 6.2%

Ingredients

7 lbs. (3.2 kg) golden light dried malt extract
0.5 lb. (0.23 kg) Vienna malt
0.5 lb. (0.23 kg) crystal malt (40 °L)
14 AAU Magnum hops (60 min.)
(1 oz./28 g at 14% alpha acids)

5 AAU Centennial hops (30 min.)
(0.5 oz./14 g at 10% alpha acids)
5 AAU Centennial hops (15 min.)
(0.5 oz./14 g at 10% alpha acids)
3.5 AAU Cascade hops (5 min.)
(0.5 oz./14 g at 7% alpha acids)
0.5 oz. (14 g) Centennial hops (0 min.)
0.5 oz. (14 g) Cascade hops (0 min.)
0.5 oz. (14 g) Amarillo® hops (dry hop)
1 oz. (28 g) Simcoe® hops (dry hop)
0.5 oz. (14 g) Centennial hops (dry hop)
0.5 oz. (14 g) Cascade hops (dry hop)
White Labs WLP001 (California Ale),
Wyeast 1056 (American Ale), or
Safale US-05 yeast
¾ cup corn sugar (if priming)

Step by Step

Make a yeast starter if using a liquid strain a day or two before brew day. On brew day, steep the crushed grain in 2 gallons (7.6 L) of water as it warms until a temperature of about 150 °F (65.5 °C) is reached, or approximately 20 minutes. Remove grains from the wort and rinse with 4 quarts (3.8 L) of hot water. Add the liquid to reach a total of 3 gallons (11.3 L) and bring to a boil. If you can do a full volume boil, 5.5 gallon (21 L), it is recommended. Turn off the heat, add the malt extract, and stir until completely dissolved. Return to heat and add first hop addition. Continue to add hop additions at intervals listed in the ingredients list. Cool the wort to room temperature, then top off with cold, filtered water to reach 5.5 gallons (21 L). Pitch yeast starter. Ferment between 64–68 °F (18–20 °C). Transfer to a secondary vessel after primary fermentation is complete. Dry hop for one week with 0.5 oz. (14 g) Amarillo®, 0.5 oz. (14 g) Simcoe®, and 0.5 oz. (14 g) Centennial hops. After one week dry hop again with 0.5 oz. (14 g) Simcoe® and 0.5 oz. (14 g) Cascade hops. Prime to 2.3 volumes of CO₂.

Lagunitas Brewing Co.'s Lagunitas IPA clone

(5 gallons/19 L, all-grain)

OG = 1.061 FG = 1.016

IBU = 67 SRM = 9 ABV = 6.2%

Ingredients

9.4 lbs. (4.3 kg) 2-row pale malt
1.3 lbs. (0.59 kg) crystal malt (10 °L)
13 oz. (0.37 kg) wheat malt
13 oz. (0.37 kg) light Munich malt (6 °L)
9 oz. (0.25 kg) crystal malt (60 °L)
8.25 AAU Horizon hops (60 min.)
(0.75 oz./21 g at 11% alpha acids)
4.5 AAU Summit™ hops (60 min.)
(0.25 oz./7 g at 18% alpha acids)



4.5 AAU Willamette hops (30 min.)
 (0.9 oz./26 g at 5% alpha acids)
 2.4 AAU Centennial hops (30 min.)
 (0.25 oz./7 g at 9.5% alpha acids)
 7.5 AAU Cascade hops (0 min.)
 (1.5 oz./43 g at 5% alpha acids)
 1 oz. (28 g) Cascade hops (dry hop)
 1 oz. (28 g) Centennial hops (dry hop)
 1 tsp. Irish moss (15 min.)
 Wyeast 1056 (American Ale),
 White Labs WLP001 (California Ale), or
 Safale US-05 yeast
 ¾ cups corn sugar (if priming)

Step by Step

Mash at 160 °F (71 °C). Boil for 90 minutes, adding ingredients as indicated in the ingredient list. After the boil, let the wort sit for 15 minutes before cooling. Ferment at 70 °F (21 °C). When fermentation slows, add dry hops for five to seven days. Bottle or keg as usual.

LAGUNITAS BREWING CO.'S LAGUNITAS IPA CLONE

(5 gallons/19 L, partial mash)
 OG = 1.061 FG = 1.016
 IBU = 67 SRM = 9 ABV = 6.2%

Ingredients

4.5 lbs. (2 kg) light dried malt extract
 1 lb. (0.45 kg) 2-row pale malt.
 1.3 lbs. (0.59 kg) crystal malt (10 °L)
 13 oz. (0.37 kg) wheat malt
 13 oz. (0.37 kg) light Munich malt (6 °L)
 9 oz. (0.25 kg) crystal malt (60 °L)
 8.25 AAU Horizon hops (60 min.)
 (0.75 oz./21 g at 11% alpha acids)
 4.5 AAU Summit™ hops (60 min.)
 (0.25 oz./7 g at 18% alpha acids)
 4.5 AAU Willamette hops (30 min.)
 (0.9 oz./26 g at 5% alpha acids)
 2.4 AAU Centennial hops (30 min.)
 (0.25 oz./7 g at 9.5% alpha acids)
 7.5 AAU Cascade hops (0 min.)
 (1.5 oz./43 g at 5% alpha acids)
 1 oz. (28 g) Cascade hops (dry hop)
 1 oz. (28 g) Centennial hops (dry hop)
 1 tsp. Irish moss (15 min.)
 Wyeast 1056 (American Ale),
 White Labs WLP001 (California Ale), or
 Safale US-05 yeast
 ¾ cups corn sugar (if priming)

Step by Step

Steep crushed grains in 1 gallon (3.8 L) of water at 160 °F (71 °C) for 45 minutes. Remove grain bag and rinse with at least 2 gallons (8 L) or hot water over your brew pot. Boil for 60 minutes, adding ingredients as indicated in the ingredient list. After the boil, let the wort sit for 15 minutes before cooling. Top your sanitized fermenter up to 5 gallons (19 L) and ferment at 70 °F

(21 °C). When fermentation slows, add dry hops for five to seven days. Bottle or keg as usual.

Lawson's Finest Liquids' Super Session IPA clone

(5 gallons/19 L, all-grain)
 OG = 1.050 FG = 1.017
 IBU = 47 SRM = 5 ABV = 4.3%

Ingredients

8.6 lbs. (3.9 kg) pale ale malt
 1 lb. (0.45 kg) Carapils® (dextrin) malt
 6 oz. (170 g) crystal malt (10 °L)
 6 oz. (170 g) Munich malt (10 °L)
 2.5 AAU Amarillo® hop pellets (60 min.)
 (0.25 oz./7 g at 10% alpha acids)
 5 oz. (142 g) Amarillo® hop pellets (0 min.)
 3 oz. (85 g) Amarillo® hop pellets (dry hop)
 ½ tsp. Irish moss (30 min.)
 Wyeast 1056 (American Ale),
 White Labs WLP001 (California Ale),
 Lallemand BRY-97,
 Mangrove Jack's M44 (US West Coast), or
 Safale US-05 yeast
 ¾ cup corn sugar (if priming)

Step by Step

This is a single step infusion mash, mashing at 158 °F (70 °C) to create a fuller-bodied beer. Mix all the crushed grains with 3.5 gallons (13 L) of 170 °F (77 °C) water and stabilize the mash at 158 °F (70 °C) for 60 minutes. Raise the mash temperature to 165 °F (74 °C) and sparge with enough 175 °F (79 °C) water to collect approximately 6 gallons (23 L) of wort.

Boil the wort for 60 minutes. Add the first hop addition of Amarillo® at the beginning of the boil primarily as a foam inhibitor. Add the Irish moss for the last 30 minutes. Turn off the burner and remove the pot from the heat source. Now add 5 oz. (142 g) of Amarillo® hops, and stir to mix in. After about three to four minutes, begin using your wort chiller to drop the temperature of the wort to 170 °F (77 °C) and hold for 15 minutes. After that time continue to chill to yeast pitching temperature. This extracts a small amount of hop bitterness, and a large amount of hop flavors.

When you have cooled the wort to about 80 °F (27 °C), you can strain the wort into a fermenter. Aerate the wort and pitch the yeast. Ferment at 68–70 °F (20–21 °C) to help hold the aromatics in the beer. When fermentation is complete, rack the beer off the trub and add the remaining dry hop addition of Amarillo®. Allow the beer to absorb the dry hop flavors for about four days. Bottle or keg as normal.

LAWSON'S FINEST LIQUIDS' SUPER SESSION IPA CLONE

(5 gallons/19 L, extract with grains)
 OG = 1.050 FG = 1.017
 IBU = 48 SRM = 5 ABV = 4.3%

Ingredients

3.3 lbs. (1.5 kg) Briess unhopped light liquid malt extract
 2.1 lbs. (0.95 kg) Briess light dried malt extract
 1 lb. (0.45 kg) Carapils® (dextrin) malt
 6 oz. (170 g) crystal malt (10 °L)
 6 oz. (170 g) Munich malt (10 °L)
 2.5 AAU Amarillo® hop pellets (60 min.)
 (0.25 oz./7 g at 10% alpha acids)
 5 oz. (142 g) Amarillo® hop pellets (0 min.)
 3 oz. (85 g) Amarillo® hop pellets (dry hop)
 ½ tsp. Irish moss (30 min.)
 Wyeast 1056 (American Ale),
 White Labs WLP001 (California Ale),
 Lallemand BRY-97,
 Mangrove Jack's M44 (US West Coast), or
 Safale US-05 yeast
 ¾ cup corn sugar (if priming)

Step by Step

Steep the crushed malts in 2.5 gallons (9.5 L) of water at 155 °F (68 °C) for 30 minutes. Remove the grains from the wort. Add the malt extracts and boil for 60 minutes. Add the first hop addition of Amarillo® at the beginning of the boil primarily as a foam inhibitor. Add the Irish moss for the last 30 minutes. Turn off the burner and remove the pot from the heat source. Now add 5 oz. (142 g) of Amarillo® hops and stir to mix in. After about three to four minutes, begin using your wort chiller to drop the temperature of the wort to 170 °F (77 °C) and hold for 15 minutes. After that time continue to chill to yeast pitching temperature. This extracts a small amount of hop bitterness, and a large amount of hop flavors. When you have cooled your wort to about 80 °F (27 °C), you can strain the wort into your fermenter. Top off to 5 gallons (19 L) then aerate your wort and pitch your yeast. Ferment at 68–70 °F (20–21 °C) to help hold the aromatics in the beer. When fermentation is complete, rack your beer off the trub, and add the remaining dry hop addition of Amarillo® hops, and allow the beer to absorb the dry hop flavors for about four days. Then bottle or keg as you normally would.

Mayflower Brewing Co.'s Mayflower IPA clone

(5 gallons/19 L, all-grain)
 OG = 1.062 FG = 1.014
 IBU = 72 SRM = 6 ABV = 6.5%



Ingredients

11.5 lbs. (4.5 kg) 2-row pale malt
 18 oz. (0.51 kg) Munich malt (8 °L)
 10 oz. (0.28 kg) Weyermann Carared® malt (20 °L)
 7.8 AAU Nugget hop pellets (60 min.)
 (0.6 oz./17 g at 13% alpha acids)
 12.8 AAU Simcoe® hop pellets (30 min.)
 (1 oz./28 g at 12.8% alpha acids)
 5 AAU Amarillo® hop pellets (5 min.)
 (0.5 oz./14 g at 10% alpha acids)
 5 AAU Amarillo® hop pellets (0 min.)
 (0.5 oz./14 g at 10% alpha acids)
 1 oz. (28 g) Glacier hop pellets (dry hop)
 ½ tsp. Irish moss (30 min.)
 ½ tsp. yeast nutrient (15 min.)
 White Labs WLP002 (English Ale),
 Wyeast 1099 (Whitbread Ale), or
 Safale S-04 yeast
 ¾ cup corn sugar (if priming)

Step by Step

This is a single step infusion mash. Mix all of the crushed grains with 5 gallons (19 L) of 171 °F (77 °C) water to stabilize at 150 °F (66 °C) for 60 minutes. Sparge slowly with 175 °F (79 °C) water. Collect approximately 6 gallons (23 L) of wort runoff to boil for 60 minutes. Add hops, Irish moss and yeast nutrients according to the schedule. Cool the wort to 75 °F (24 °C). Pitch your yeast and aerate the wort heavily. Allow the beer to cool to 68 °F (20 °C). Hold at that temperature until fermentation is complete. Transfer to a carboy, avoiding any splashing. Add the dry hops and allow the beer to condition for one week and then bottle or keg. Allow the beer to carbonate and age for two weeks.

MAYFLOWER BREWING CO.'S MAYFLOWER IPA CLONE

(5 gallons/19 L, partial mash)
 OG = 1.062 FG = 1.014
 IBU = 72 SRM = 6 ABV = 6.5%

Ingredients

6.6 lbs. (3 kg) Coopers light, unhopped, liquid malt extract
 1.5 lbs. (0.68 kg) 2-row pale malt
 18 oz. (0.51 kg) Munich malt (8 °L)
 10 oz. (0.28 kg) Weyermann Carared® malt (20 °L)
 9.75 AAU Nugget hop pellets (60 min.)
 (0.75 oz./21 g at 13% alpha acids)
 12.8 AAU Simcoe® hop pellets (30 min.)
 (1 oz./28 g at 12.8% alpha acids)
 5 AAU Amarillo® hop pellets (5 min.)
 (0.5 oz./14 g at 10% alpha acids)
 5 AAU Amarillo® hop pellets (0 min.)
 (0.5 oz./14 g at 10% alpha acids)
 1 oz. (28 g) Glacier hop pellets (dry hop)
 ½ tsp. Irish moss (30 min.)
 ½ tsp. yeast nutrient (15 min.)

White Labs WLP002 (English Ale),
 Wyeast 1099 (Whitbread Ale), or
 Safale S-04 yeast
 ¾ cup corn sugar (if priming)

Step by Step

Steep the crushed grain in 2 gallons (7.6 L) of water at 150 °F (66 °C) for 30 minutes. Remove grains from the wort and rinse with 2 quarts (1.8 L) of hot water. Add the liquid malt extract and boil for 60 minutes. Add the hops, Irish moss and yeast nutrient as per the schedule. Use any downtime to sanitize your fermentation equipment. Add the wort to 2 gallons (7.6 L) of cold water in the sanitized fermenter and top off with cold water up to 5 gallons (19 L). Cool the wort to 75 °F (24 °C). Pitch your yeast and aerate the wort heavily. Allow the beer to cool to 68 °F (20 °C). Hold at that temperature until fermentation is complete. Transfer to a carboy, avoiding any splashing. Add the dry hops and allow the beer to condition for one week and then bottle or keg. Allow the beer to carbonate and age for two weeks.

New Belgium Brewing Co.'s Ranger IPA clone

(5 gallons/19 L, all-grain)
 OG = 1.059 FG = 1.009
 IBU = 70 SRM = 7 ABV = 6.5%

Ingredients

12 lbs. (5.4 kg) 2-row pale malt
 4 oz. (113 g) crystal malt (120 °L)
 12 AAU Chinook hops (60 min.)
 (1 oz./28 g at 12% alpha acids)
 6.5 AAU Simcoe® hops (30 min.)
 (0.5 oz./14 g at 13% alpha acids)
 3.8 AAU Cascade hops (15 min.)
 (0.75 oz./21 g at 5% alpha acids)
 0.5 oz. (14 g) Chinook hops (0 min.)
 0.5 oz. (14 g) Simcoe® hops (0 min.)
 1 oz. (28 g) Cascade hops (0 min.)
 2.5 oz. (71 g) Cascade hops (dry hop)
 Wyeast 1792 (Fat Tire Ale), Wyeast
 1272 (American Ale II), or White Labs
 WLP051 (California Ale V) yeast
 ¾ cup corn sugar (if priming)

Step by Step

Mash at 148 °F (64 °C). Boil for 90 minutes, adding hops at times indicated. Cool wort and transfer to fermenter. Ferment at 68 °F (20 °C). Dry hop in secondary or keg for one week and then bottle or keg.

NEW BELGIUM BREWING CO.'S RANGER IPA CLONE

(5 gallons/19 L, extract with grains)
 OG = 1.059 FG = 1.009

IBU = 70 SRM = 7 ABV = 6.5%

Ingredients

4.5 lbs. (2 kg) Briess light dried malt extract
 1 lb. (0.45 kg) cane sugar (15 min.)
 1 lb. 13 oz. (0.82 kg) pale malt
 4 oz. (113 g) crystal malt (120 °L)
 12 AAU Chinook hops (60 min.)
 (1 oz./28 g at 12% alpha acids)
 6.5 AAU Simcoe® hops (30 min.)
 (0.5 oz./14 g at 13% alpha acids)
 3.8 AAU Cascade hops (15 min.)
 (0.75 oz./21 g at 5% alpha acids)
 0.5 oz. (14 g) Chinook hops (0 min.)
 0.5 oz. (14 g) Simcoe® hops (0 min.)
 1 oz. (28 g) Cascade hops (0 min.)
 2.5 oz. (71 g) Cascade hops (dry hop)
 Wyeast 1792 (Fat Tire Ale), Wyeast
 1272 (American Ale II), or White Labs
 WLP051 (California Ale V) yeast
 ¾ cup corn sugar (if priming)

Step by Step

Steep grains in 3 qts. (2.8 L) of water at 148 °F (64 °C) for 45 minutes. Add water to make 4 gallons (15 L) of wort and bring to a boil. Stir in roughly half of the dried malt extract and boil for 60 minutes, adding hops at times indicated. Add remaining malt extract and cane sugar for final 15 minutes of the boil. Cool wort and transfer to fermenter. Top up to 5 gallons (19 L) with cool water, aerate and pitch yeast. Ferment at 68 °F (20 °C). Dry hop in secondary or keg for one week.

North Coast Brewing Co.'s Acme California IPA clone

(5 gallons/19 L, all-grain)
 OG = 1.062 FG = 1.011
 IBU = 55 SRM = 7 ABV = 6.9%

Ingredients

11.33 lbs. (5.1 kg) Great Western 2-row pale malt
 1 lb. (0.45 kg) Vienna malt
 0.33 lb. (0.15 kg) Munich malt
 0.33 lb. (0.15 kg) Carapils® malt
 3.3 AAU Cluster hop pellets (60 min.)
 (0.47 oz./13 g at 7% alpha acids)
 3.3 AAU Cluster hop pellets (30 min.)
 (0.47 oz./13 g at 7% alpha acids)
 14 AAU Northern Brewer hop pellets
 (0 min.) (1.6 oz./44 g at 9% alpha acids)
 1 tsp. Irish moss (15 min.)
 Wyeast 1056 (American Ale) or White
 Labs WLP001 (California Ale) yeast
 ¾ cups corn sugar (if priming)

Step by Step

Mash at 154 °F (68 °F) for 60 minutes. Recir-



culate for 20 minutes, then collect 7 gallons (26 L) of wort. Boil for 90 minutes, adding hops with 60 minutes and 30 minutes left in boil. At 15 minutes left in the boil, add the Irish moss. At knockout, add the Northern Brewer hops, whirlpool the wort and let it sit for 30 minutes (covered) before you begin cooling. After 30 minutes, chill wort, aerate and pitch yeast. Ferment at 68 °F (20 °C).

NORTH COAST BREWING CO.'S ACME CALIFORNIA IPA CLONE

(5 gallons/19 L, partial mash)
OG = 1.062 FG = 1.011
IBU = 55 SRM = 7 ABV = 6.9%

Ingredients

5.5 lbs. (2.5 kg) light dried malt extract
1 lb. (0.45 kg) 2-row pale malt
1 lb. (0.45 kg) Vienna malt
0.33 lb. (0.15 kg) Munich malt
0.33 lb. (0.15 kg) Carapils® malt
3.3 AAU Cluster hop pellets (60 min.)
(0.47 oz./13 g at 7% alpha acids)
3.3 AAU Cluster hop pellets (30 min.)
(0.47 oz./13 g at 7% alpha acids)
14 AAU Northern Brewer hop pellets (0 min.)
(1.6 oz./44 g at 9% alpha acids)
1 tsp. Irish moss (15 min.)
Wyeast 1056 (American Ale) or White Labs WLP001 (California Ale) yeast
¾ cups corn sugar (if priming)

Step by Step

Steep crushed 2-row, Vienna, Munich and Carapils® malts in 3 quarts (~3 L) of water at 154 °F (68 °C) for 45 minutes. Wash the grains with 3 quarts (~3 L) hot water. Add the dried malt extract and stir until dissolved then top off to 7 gallons (26 L) of wort. Boil for 90 minutes, adding hop with 60 minutes and 30 minutes left in boil. At 15 minutes left in the boil, add the Irish moss. At flameout, add the Northern Brewer hops, whirlpool the wort and let it sit for 30 minutes (covered) before you begin cooling. After 30 minutes, chill wort, aerate and pitch yeast. Ferment at 68 °F (20 °C) and bottle or keg as usual.

NORTH COAST BREWING CO.'S ACME CALIFORNIA IPA CLONE

(5 gallons/19 L, extract only)
OG = 1.062 FG = 1.011
IBU = 55 SRM = 7 ABV = 6.9%

Ingredients

4.25 lbs. (1.9 kg) extra light dried malt extract
3.3 lbs. (1.5 kg) Munich liquid malt extract
3.3 AAU Cluster hop pellets (60 min.)
(0.47 oz./13 g at 7% alpha acids)

3.3 AAU Cluster hop pellets (30 min.)
(0.47 oz./13 g at 7% alpha acids)
14 AAU Northern Brewer hop pellets (0 min.)
(1.6 oz./44 g at 9% alpha acids)
1 tsp. Irish moss (15 min.)
Wyeast 1056 (American Ale) or White Labs WLP001 (California Ale) yeast
¾ cups corn sugar (if priming)

Step by Step

Bring 5 gallons (19-L) of water to a boil and add the malt extract off heat so as not to scorch it. Boil 60 minutes, adding the hops and Irish moss at times indicated. At flameout, add the Northern Brewer hops, whirlpool the wort and let it sit for 30 minutes (covered) before you begin cooling. After 30 minutes, chill wort, aerate and pitch yeast. Ferment at 68 °F (20 °C) and bottle or keg as usual.

Peachtree IPA

(5 gallons/19 L, all-grain)
OG = 1.063 FG = 1.012
IBU = 66 SRM = 9 ABV = 6.7%

Ingredients

11.75 lbs. (5.3 kg) US 2-row pale malt
1.4 lbs. (0.64 kg) Munich malt (9 °L)
13 oz. (0.36 kg) crystal malt (20 °L)
9 oz. (0.25 kg) crystal malt (40 °L)
16.3 AAU Nugget hops (60 min.)
(1.25 oz./35 g at 13% alpha acids)
16.3 AAU Simcoe® hops (5 min.)
(1.25 oz./35 g at 13% alpha acids)
1.25 oz. (35 g) Amarillo® hops (0 min.)
1.25 oz. (35 g) Citra® hops (dry hop)
½ tsp. yeast nutrient (15 min.)
Wyeast 1056 (American Ale),
White Labs WLP001 (California Ale), or
Safale US-05 yeast
¾ cup corn sugar (if priming)

Step by Step

This is a single infusion mash. Heat 4.5 gallons (17 L) of strike water for a mash ratio of about 1.25 quarts per pound of grain (2.6 L/kg). Target a mash temperature of 154 °F (68 °C) and hold for 60 minutes. Batch sparge with enough water to collect approximately 7 gallons (26.4 L) of wort runoff and bring to a boil. The goal is to get 5.5 gallons (21 L) of wort into the fermenter. Boil the wort for 60 minutes adding the Nugget hops at the beginning, the yeast nutrients with 15 minutes left in the boil, and the Simcoe® hop addition with five minutes remaining in the boil. After turning off the heat, add the Amarillo® hops, then chill the wort to 68 °F (20 °C) and pitch the yeast, preferably as a 1.5-L yeast starter if pitching liquid yeast. Hold at this temperature for the duration of primary fermentation. Fermenta-

tion should take 10–14 days. Following fermentation, dry hop with Citra® hops for five days before bottling or transferring to keg. Prime to 2.4 volumes of CO₂.

PEACHTREE IPA

(5 gallons/19 L, extract with grains)
OG = 1.063 FG = 1.012
IBU = 66 SRM = 9 ABV = 6.7%

Ingredients

4.75 lbs. (2.15 kg) extra light dried malt extract
3.3 lbs. (1.5 kg) Munich liquid malt extract
8 oz. (0.23 kg) crystal malt (20 °L)
8 oz. (0.23 kg) crystal malt (40 °L)
16.3 AAU Nugget hops (60 min.)
(1.25 oz./35 g at 13% alpha acids)
16.3 AAU Simcoe® hops (5 min.)
(1.25 oz./35 g at 13% alpha acids)
1.25 oz. (35 g) Amarillo® hops (0 min.)
1.25 oz. (35 g) Citra® hops (dry hop)
½ tsp. yeast nutrient (15 min.)
Wyeast 1056 (American Ale),
White Labs WLP001 (California Ale), or
Safale US-05 yeast
¾ cup corn sugar (if priming)

Step by Step

Steep the crushed grain in 2 gallons (7.6 L) of water as it warms until a temperature of about 170 °F (77 °C) is reached, or approximately 20 minutes. Remove the grains from the wort and rinse with 4 quarts (3.7 L) of hot water. Add the liquid to reach a total of 3 gallons (11.3 L) in the brew pot and bring the wort to a boil. Turn off the heat, add the liquid malt extract, and stir until completely dissolved. Return to heat and add the Nugget hops. With 15 minutes remaining in the boil, add the dried malt extract and yeast nutrients. Add the Simcoe® hop addition with five minutes remaining in the boil. After turning off the heat, add the Amarillo® hops and then rapidly chill the wort to room temperature. Transfer to a fermenter and top off to 5.5 gallons (21 L).

Pitch the yeast when the temperature of the wort is about 68 °F (20 °C). Preferably pitch the yeast as a 1.5-L starter if pitching liquid yeast. Hold the wort at this temperature for the duration of primary fermentation. Fermentation should take 10–14 days. Following fermentation, dry hop for five days before bottling or transferring to keg. Prime to 2.4 volumes of CO₂.

Portland U-Brew and Pub Fresh Hop IPA

(5 gallons/19 L, all-grain)
OG = 1.061 FG = 1.014
IBU = 70 SRM = 12 ABV = 6.4%



Ingredients

9.5 lbs. (4.3 kg) 2-row pale malt
 2.3 lbs. (1.05 kg) Briess Victory® malt
 1 lb. (0.45 kg) rye malt
 5 oz. (0.14 kg) crystal malt (80 °L)
 9.75 AAU Citra® hop pellets (60 min.)
 (0.75 oz./21 g at 13% alpha acids)
 15 AAU Citra® fresh hops (15 min.)
 (6 oz./170 g at ~2.5% alpha acids)
 12.5 AAU Citra® fresh hops (5 min.)
 (5 oz./142 g at ~2.5% alpha acids)
 5 oz. (142 g) Citra® fresh hops (0 min.)
 Wyeast 1056 (American Ale),
 White Labs WLP001 (California Ale), or
 Safale US-05 yeast
 ¼ cup corn sugar (if bottling)

Step by Step

Mash at 150 °F (66 °C) for 60 minutes, and mash out at 168 °F (75 °C) for an additional 5 minutes, then collect about 6.5 gallons (24.5 L) of wort. Boil for 30 minutes without any hop additions, then boil 60 minutes with your first additions of Citra® hop pellets. Add the first addition of Citra® fresh hops with 15 minutes left in the boil. Add your second addition of Citra® fresh hops for the last 5 minutes of the boil. After the boil is complete, turn off your burner, and now steep your last addition of fresh hops for 5 minutes, then cool your wort, fill your fermenter and ferment at 68 °F (20 °C) until fermentation is complete.

Brewers Note:

For fresh hops, we estimate the alpha acids to be ⅓ of the average acids typically associated with that hop after it is dried. This helps us to better calculate IBUs in a fresh hop beer.

PORTLAND U-BREW AND PUB FRESH HOP IPA

(5 gallons/19 L, partial mash)
 OG = 1.061 FG = 1.014
 IBU = 70 SRM = 12 ABV = 6.4%

Ingredients

4 lbs. (1.8 kg) extra light dried malt extract
 2 lbs. (0.91 kg) 2-row pale malt
 2.3 lbs. (1.05 kg) Briess Victory® malt
 1 lb. (0.45 kg) rye malt
 5 oz. (0.14 kg) crystal malt (80 °L)
 9.75 AAU Citra® hop pellets (60 min.)
 (0.75 oz./21 g at 13% alpha acids)
 15 AAU Citra® fresh hops (15 min.)
 (6 oz./170 g at ~2.5% alpha acids)
 12.5 AAU Citra® fresh hops (5 min.)
 (5 oz./142 g at ~2.5% alpha acids)
 5 oz. (142 g) Citra® fresh hops (0 min.)
 Wyeast 1056 (American Ale),
 White Labs WLP001 (California Ale), or
 Safale US-05 yeast
 ¼ cup corn sugar (if bottling)

Step by Step

Steep the crushed grains in approximately 2 gallons (7.6 L) of water at 150 °F (66 °C) for 30 minutes. Remove the grains from the wort and wash the grains with 1 gallon (3.8 L) hot water. Bring the wort up to a boil and add 1 lb. (0.45 kg) of the dried malt extract. Add your Citra® hop pellets and boil for 60 minutes. With 15 minutes left in the boil, add the first addition of Citra® fresh hops. Add the remainder of the 5.6 lbs. (2.5 kg) of liquid malt extract for the last 5 minutes of the boil and stir to thoroughly mix into the beer and avoid scorching the malt extract. When you get the malt extract mixed in, add your second addition of Citra® fresh hops and boil for 5 minutes. At the end of your 60-minute boil turn your heat off and add your last addition of Citra® fresh hops. Steep the fresh hops in the beer for 5 minutes. Now add the wort to 2 gallons (8 L) of cold water in a sanitized fermenter and top up to 5.25 gallons (20 L). Cool the wort to 65 °F (18 °C) and add your yeast. Aerate your wort, and ferment at 68 °F (20 °C) until fermentation is complete.

Riverwards IPA

(5 gallons/19 L, all-grain)
 OG = 1.060 FG = 1.012
 IBU = 42 SRM = 4 ABV = 6.4%

Ingredients

11 lbs. (5 kg) 2-row pale malt
 1.4 lbs. (0.64 kg) white wheat malt
 1.4 lbs. (0.64 kg) flaked oats
 4.3 AAU Columbus hops (first wort hop)
 (0.25 oz./7 g at 17% alpha acids)
 11.1 AAU Amarillo® hops (5 min.)
 (1.25 oz./35 g at 8.9% alpha acids)
 18.1 AAU Citra® hops (5 min.)
 (1.25 oz./35 g at 14.5% alpha acids)
 1.25 oz. (35 g) Amarillo® hops (hop stand)
 1.25 oz. (35 g) Citra® hops (hop stand)
 2.5 oz. (71 g) Amarillo® hops (dry hop)
 2.5 oz. (71 g) Citra® hops (dry hop)
 1 oz. (28 g) Simcoe® hops (dry hop)
 ½ tsp. yeast nutrient (15 min.)
 1 tsp. Irish moss (15 min.)
 The Yeast Bay (Vermont Ale),
 East Coast Yeast ECY29 (North East Ale),
 or GigaYeast GY054 (Vermont IPA) yeast
 ¼ cup corn sugar (if priming)

Step by Step

Mill the grains and dough-in with 17.25 qts. (16.3 L) of strike water, for a mash ratio of about 1.25 quarts per pound of grain (2.6 L/kg). Target a mash temperature of 150 °F (66 °C) and hold for 60 minutes. Sparge with 170 °F (77 °C) water. While the runnings are being collected, add your first

wort hop addition. Collect approximately 7 gallons (26.4 L) of wort runoff and bring to a boil. The goal is to get 5.5 gallons (21 L) into the fermenter. Add the Irish moss with 15 minutes left in the boil. Add the first charge of Amarillo® and Citra® hops with 5 minutes left in the boil.

After the 60-minute boil, chill the entire wort down to 185 °F (85 °C) and add the hop stand addition of hops and let the wort rest for 45 minutes with the lid on. Once the whirlpool/hop stand is complete, chill your wort to yeast pitching temperature.

Pitch your yeast as a 1.5-L yeast starter and ferment at 64–70 °F (18–21 °C). Fermentation should take 10–14 days. Following fermentation, dry hop for five days before bottling or transferring to keg. Prime to 2.3 volumes of CO₂.

RIVERWARDS IPA

(5 gallons/19 L, extract only)
 OG = 1.060 FG = 1.012
 IBU = 42 SRM = 4 ABV = 6.4%

Ingredients

5.5 lbs. (2.5 kg) golden light dried malt extract
 1 lb. (0.45 kg) wheat dried malt extract
 1 lb. (0.45 kg) corn sugar (dextrose)
 4.3 AAU Columbus hops (first wort hop)
 (0.25 oz./7 g at 17% alpha acids)
 11.1 AAU Amarillo® hops (5 min.)
 (1.25 oz./35 g at 8.9% alpha acids)
 18.1 AAU Citra® hops (5 min.)
 (1.25 oz./35 g at 14.5% alpha acids)
 1.25 oz. (35 g) Amarillo® hops (hop stand)
 1.25 oz. (35 g) Citra® hops (hop stand)
 2.5 oz. (71 g) Amarillo® hops (dry hop)
 2.5 oz. (71 g) Citra® hops (dry hop)
 1 oz. (28 g) Simcoe® hops (dry hop)
 ½ tsp. yeast nutrient (15 min.)
 1 tsp. Irish moss (15 min.)
 The Yeast Bay (Vermont Ale) or
 GigaYeast GY054 (Vermont IPA) or
 East Coast Yeast ECY29 (North East Ale) yeast
 ¼ cup corn sugar (if priming)

Step by Step

Add the water to reach a total of 3 gallons (11.3 L), then bring to a boil. Turn off the heat, add the malt extract and corn sugar, and stir until completely dissolved. Return to heat and add first hop addition. Add the Irish moss with 15 minutes left in the boil. Add the first charge of Amarillo® and Citra® hops with 5 minutes left in the boil. Boil for a total of 60 minutes, then top off with cold, filtered water until the temperature of the wort drops to 185 °F (85 °C). Add whirlpool/hop stand additions and let rest for 45 minutes with the lid on. Once the whirlpool/hop stand is complete, top off with cold, filtered



water to reach a total volume of 5.5 gallons (21 L), then continue to chill wort to yeast pitching temperatures.

Pitch the yeast as a 1.5-L yeast starter and ferment at 64-70 °F (18- 21 °C). Fermentation should take 10-14 days. Following fermentation, dry hop for 5 days before bottling or transferring to keg. Prime to 2.3 volumes of CO₂.

Roswell IPA

(5 gallons/19 L, all-grain)
OG = 1.070 FG = 1.014
IBU = 60 SRM = 8 ABV = 7.7%

Ingredients

13 lbs. 9 oz. (6.15 kg) US 2-row pale malt
11 oz. (0.31 kg) Vienna malt
5 oz. (0.14 kg) crystal malt (30 °L)
14 AAU Magnum hops (60 min.)
(1 oz./28 g at 14% alpha acids)
3.8 AAU Centennial hops (15 min.)
(0.38 oz./11 g at 10% alpha acids)
3.75 AAU Cascade hops (5 min.)
(0.75 oz./21 g at 5% alpha acids)
0.75 oz. (21 g) Cascade hops (dry hop)
0.5 oz. (14 g) Amarillo® hops (dry hop)
1 tsp. Irish moss (15 min.)
½ tsp. calcium chloride (optional)
Wyeast 1056 (American Ale),
White Labs WLP001 (California Ale), or
Safale US-05 yeast
(3 qt./~3 L yeast starter)
¾ cups corn sugar (if priming)

Step by Step

Prepare 12 gallons (45 L) of brewing liquor with bicarbonate below 50 ppm and calcium around 75 ppm. (Adding 3.5 tsp. of gypsum to 12 gallons/45 L of soft water will get you there.) Add a Campden tablet the night before you brew to get rid of chlorine compounds. Mash grains at 152 °F (67 °C) in 18 qts. (17 L) of water. Rest for 60 minutes, then mash out to 168 °F (76 °C). Recirculate wort for 20 minutes, then collect around 7 gallons (26 L) of wort in your kettle. Keep your sparge water hot enough that the grain bed temperature remains at 168 °F (76 °C). Boil wort vigorously for 90 minutes, adding hops at times indicated. (As an option, add ½ tsp. calcium chloride at the beginning of the boil.) Knock any hops that cling to the side of your kettle back into the boiling wort. Cool wort and transfer to fermenter. Aerate thoroughly and pitch sediment from yeast starter. Ferment at 68 °F (20 °C) until primary fermentation ends. (This should take about a week.) Rack to secondary fermenter. If you are going to bottle your beer, let it sit for three to four days, add the dry hops and let the beer sit for another three to four

days, then bottle it. If you are going to keg your beer, let the beer sit in secondary until it clears substantially (7-10 days), then keg and dry hop.

ROSWELL IPA

(5 gallons/19 L, partial mash)
OG = 1.070 FG = 1.014
IBU = 60 SRM = 8 ABV = 7.7%

Ingredients

5 lbs. 10 oz. (2.6 kg) Briess light dried malt extract
3 lbs. (1.4 kg) US 2-row pale malt
11 oz. (0.31 kg) Vienna malt
5 oz. (0.14 kg) crystal malt (30 °L)
14 AAU Magnum hops (60 min.)
(1 oz./28 g at 14% alpha acids)
3.8 AAU Centennial hops (15 min.)
(0.38 oz./11 g at 10% alpha acids)
3.75 AAU Cascade hops (5 min.)
(0.75 oz./21 g at 5% alpha acids)
0.75 oz. (21 g) Cascade hops (dry hop)
0.5 oz. (14 g) Amarillo® hops (dry hop)
1 tsp. Irish moss (15 min.)
½ tsp. calcium chloride (optional)
Wyeast 1056 (American Ale),
White Labs WLP001 (California Ale), or
Safale US-05 yeast
(3 qt./~3 L yeast starter)
¾ cups corn sugar (if priming)

Step by Step

Steep grains at 152 °F (67 °C) in 6 qts. (5.7 L) of water for 60 minutes. In your brewpot, combine "grain tea" and hot water to make at least 4 gallons (15 L) of wort, then stir in malt extract. Boil wort for 60 minutes. Cool wort and transfer to fermenter. Aerate thoroughly and pitch sediment from yeast starter. Ferment at 68 °F (20 °C) until primary fermentation ends. (This should take about a week.) Rack to secondary fermenter. If you are going to bottle your beer, let it sit for three to four days, add the dry hops and let the beer sit for another three to four days, then bottle it. If you are going to keg your beer, let the beer sit in secondary until it clears substantially (7-10 days), then keg and dry hop.

Route 66 IPA

(5 gallons/19 L, all-grain)
OG = 1.068 FG = 1.017
IBU = 66 SRM = 16 ABV = 6.6%

Ingredients

10.75 lbs. (4.9 kg) English pale malt
3 lbs. (1.4 kg) Munich malt (10 °L)
7.5 oz. (0.21 kg) crystal malt (40 °L)
4.5 oz. (0.13 kg) crystal malt (60 °L)

6.5 AAU Columbus hops (60 min.)
(0.5 oz./14 g at 13% alpha acids)
4 AAU Chinook hops (60 min.)
(0.33 oz./9 g at 12% alpha acids)
1.3 AAU Cascade hops (50 min.)
(0.25 oz./7 g at 5% alpha acids)
1.3 AAU Cascade hops (40 min.)
(0.25 oz./7 g at 5% alpha acids)
2.5 AAU Cascade hops (30 min.)
(0.5 oz./14 g at 5% alpha acids)
3.8 AAU Cascade hops (20 min.)
(0.75 oz./21 g at 5% alpha acids)
5 AAU Cascade hops (10 min.)
(1 oz./28 g at 5% alpha acids)
1 oz. (28 g) Cascade hops (0 min.)
2 oz. (57 g) Cascade hops (dry hop)
1 tsp. Irish moss (15 min.)
Wyeast 1272 (American Ale II) or White Labs
WLP051 (California V Ale) yeast
(2 qt./~2 L yeast starter)
¾ cups corn sugar (if priming)

Step by Step:

Prepare 12 gallons (45 L) of brewing liquor with 50-100 ppm carbonate, over 150 ppm calcium and over 150 ppm sulfate. Treat brewing liquor with one Campden tablet overnight or filter through large carbon filter to get rid of chlorine compounds.

Heat 18 qts. (17 L) of brewing liquor to 167 °F (75 °C) and mash in grains at 156 °F (69 °C). Rest for 30 minutes, then stir in boiling water to raise temperature to 168 °F (76 °C). Rest for 5 minutes, then recirculate wort until it is clear (or 20 minutes has passed). Collect 7 gallons (26.5 L) of wort, keeping sparge water hot enough to keep grain bed around 168 °F (76 °C).

Bring wort to a boil and boil vigorously for 90 minutes. Add hops at times indicated in ingredient list. Add Irish moss for final 15 minutes of the boil. Cool wort and transfer to fermenter. (There will be a lot of hop debris.) Aerate wort and pitch yeast. Ferment at 68 °F (20 °C). Dry hop in secondary if bottling. Dry hop in keg if keggings. Let dry hops remain in contact with beer for at least five days before separating.

ROUTE 66 IPA

(5 gallons/19 L, extract with grains)
OG = 1.068 FG = 1.017
IBU = 66 SRM = 16 ABV = 6.6%

Ingredients

4.5 lbs. (2 kg) Muntions extra light dried malt extract
3.3 lbs. (1.5 kg) Munich liquid malt extract (15 min.)
7.5 oz. (0.21 kg) crystal malt (40 °L)
4.5 oz. (0.13 kg) crystal malt (60 °L)
6.5 AAU Columbus hops (60 min.)
(0.5 oz./14 g at 13% alpha acids)
4 AAU Chinook hops (60 min.)



- (0.33 oz./9 g at 12% alpha acids)
- 1.3 AAU Cascade hops (50 min.)
(0.25 oz./7 g at 5% alpha acids)
- 1.3 AAU Cascade hops (40 min.)
(0.25 oz./7 g at 5% alpha acids)
- 2.5 AAU Cascade hops (30 min.)
(0.5 oz./14 g at 5% alpha acids)
- 3.8 AAU Cascade hops (20 min.)
(0.75 oz./21 g at 5% alpha acids)
- 5 AAU Cascade hops (10 min.)
(1 oz./28 g at 5% alpha acids)
- 1 oz. (28 g) Cascade hops (0 min.)
- 2 oz. (57 g) Cascade hops (dry hop)
- 1 tsp. Irish moss (15 min.)
- Wyeast 1272 (American Ale II) or White Labs WLP051 (California V Ale) yeast
(2 qt./~2 L yeast starter)
- ¾ cups corn sugar (if priming)

Step by Step

Steep the crushed grains in a muslin bag at 160 °F (71 °C) for 20 minutes in 3 gallons (11 L) water. Remove the grains and let drip into the brewpot. Stir in the dried malt extract and bring to a boil. Add the hops per the schedule and the liquid malt extract and Irish moss with 15 minutes remaining in the boil. Be sure to keep the brewpot topped off to 3 gallons (911 L) or more during the boil with a total boil time of 60 minutes.

After the final addition of Cascade hops, cool wort and transfer to fermenter. (There will be a lot of hop debris.) Top off to 5 gallons (19 L) with cold water. Aerate wort and pitch yeast. Ferment at 68 °F (20 °C). Dry hop in secondary if bottling. Dry hop in keg if kegging. Let dry hops remain in contact with beer for at least five days before separating.

Samuel Adams Latitude 48 IPA clone

(5 gallons/19 L, all-grain)
OG = 1.060 FG = 1.015
IBU = 55 SRM = 13 ABV = 6%

Ingredients

- 11 lbs. (5 kg) 2-row pale malt (2 °L)
- 1.4 lbs. (0.64 kg) honey malt (23 °L)
- 0.5 lb. (0.23 kg) caramel malt (60 °L)
- 11 AAU Zeus pellet hops (60 min.)
(0.7 oz./20 g at 15.8% alpha acids)
- 2.1 AAU Hallertau pellet hops (15 min.)
(0.4 oz./11 g at 5.2% alpha acids)
- 3.8 AAU Simcoe® pellet hops (15 min.)
(0.3 oz./9 g at 12.8% alpha acids)
- 1.4 AAU East Kent Golding pellet hops (15 min.) (0.2 oz./6 g at 6.9% alpha acids)
- 5.1 AAU Simcoe® pellet hops (5 min.)
(0.4 oz./11 g at 12.8% alpha acids)
- 1.9 AAU Hallertau pellet hops (5 min.)

- (0.3 oz./9 g at 6.3% alpha acids)
- 1.5 oz. (42 g) Hallertau pellet hops (dry hop)
- 0.7 oz. (20 g) Simcoe® pellet hops (dry hop)
- 0.3 oz. (9 g) Mosaic™ pellet hops (dry hop)
- ½ tsp. yeast nutrients (15 min.)
- White Labs WLP001 (California Ale),
Wyeast 1056 (American Ale),
Safale US-05 or
Lallemand BRY-97 yeast
- ¾ cup corn sugar (if priming)

Step by Step

This is a single infusion mash. Mix the crushed grains with 5 gallons (19 L) of 165 °F (74 °C) strike water to stabilize the mash at 153 °F (67 °C). Hold at this temperature for 45 minutes. Vorlauf for 15 minutes then begin sparge. Run off into kettle to achieve volume and pre-boil gravity around 1.049 specific gravity. Boil for 60 minutes, adding hops and yeast nutrients according to the ingredients list. Turn off the heat, give the wort a stir for about a minute to create a whirlpool and let it spin and settle out for 15 minutes before beginning to chill the wort. Cool the wort down to slightly below fermentation temperature, about 65 °F (18 °C). Aerate the wort with filtered air or pure oxygen and pitch yeast. Ferment at 68 °F (20 °C) for one week or until signs of fermentation have died down. Rack to a secondary vessel and cool beer to 60 °F (16 °C). Condition for an additional two weeks, adding dry hops for the final 10 days of conditioning. Bottle or keg, carbonating to 2.4 volumes of CO₂.

SAMUEL ADAMS LATITUDE 48 IPA CLONE

(5 gallons/19 L, extract with grains)
OG = 1.060 FG = 1.015
IBU = 55 SRM = 13 ABV = 6%

Ingredients

- 6.6 lbs. (3 kg) light liquid malt extract
- 1.2 lbs. (0.54 kg) 2-row pale malt (2 °L)
- 1.4 lbs. (0.64 kg) honey malt (23 °L)
- 0.5 lb. (0.23 kg) caramel malt (60 °L)
- 11 AAU Zeus pellet hops (60 min.)
(0.7 oz./20 g at 15.8% alpha acids)
- 2.1 AAU Hallertau pellet hops (15 min.)
(0.4 oz./11 g at 5.2% alpha acids)
- 3.8 AAU Simcoe® pellet hops (15 min.)
(0.3 oz./9 g at 12.8% alpha acids)
- 1.4 AAU East Kent Golding pellet hops (15 min.) (0.2 oz./6 g at 6.9% alpha acids)
- 5.1 AAU Simcoe® pellet hops (5 min.)
(0.4 oz./11 g at 12.8% alpha acids)
- 1.9 AAU Hallertau pellet hops (5 min.)
(0.3 oz./9 g at 6.3% alpha acids)
- 1.5 oz. (42 g) Hallertau pellet hops (dry hop)
- 0.7 oz. (20 g) Simcoe® pellet hops (dry hop)
- 0.3 oz. (9 g) Mosaic™ pellet hops (dry hop)
- ½ tsp. yeast nutrients (15 min.)

- White Labs WLP001 (California Ale),
Wyeast 1056 (American Ale),
Safale US-05 or
Lallemand BRY-97 yeast
- ¾ cup corn sugar (if priming)

Step by Step

Place crushed grains in a muslin bag and steep in 6 qts. (5.7 L) water at 153 °F (67 °C) for 45 minutes. Remove the grain bag and slowly wash the grains with 1 gallon (3.8 L) hot water. Transfer wort to brew kettle and top off to make 6 gallons (23 L) in your brew kettle. Just before the water reaches boil, remove from heat and stir in the malt extract until all extract is dissolved. Your pre-boil gravity should be around 1.049. Boil for 60 minutes, adding hops and yeast nutrients according to the schedule above. Once you turn off the heat, give the wort a stir for about a minute to create a whirlpool and let that spin and settle out for about 15 minutes before beginning to chill the wort. Cool the wort down to slightly below fermentation temperature, about 65 °F (18 °C). Aerate the wort with filtered air or pure oxygen and pitch yeast. Ferment at 68 °F (20 °C) for one week or until signs of fermentation have died down. Rack to a secondary vessel and cool beer to 60 °F (16 °C). Condition for an additional two weeks, adding dry hops for the final 10 days of conditioning. Bottle or keg, carbonating to 2.4 volumes of CO₂.

Sierra Nevada Brewing Co.'s Celebration clone

(5 gallons/19 L, all-grain)
OG = 1.064 FG = 1.016
IBU = 65 SRM = 12 ABV = 6.8%

Ingredients

- 12.5 lbs. (5.7 kg) 2-row pale malt
- 15 oz. (0.43 kg) caramel malt (60 °L)
- 9 AAU Chinook hops (100 min.)
(0.75 oz./21 g at 12% alpha acids)
- 5 AAU Centennial hops (100 min.)
(0.5 oz./14 g at 10% alpha acids)
- 7.5 AAU Cascade hops (10 min.)
(1.5 oz./43 g at 5% alpha acids)
- 0.66 oz. (19 g) Centennial hops (0 min.)
- 1.33 oz. (38 g) Cascade hops (0 min.)
- 1.33 oz. (38 g) Cascade hops (dry hop)
- 0.66 oz. (19 g) Centennial hops (dry hop)
- Wyeast 1056 (American Ale),
White Labs WLP001 (California Ale), or
Safale US-05 yeast
(1.5 qt./1.5 L yeast starter)
- 1 cup corn sugar (if priming)

Step by Step

Two or three days before brew day, make the



yeast starter, aerating the wort thoroughly (preferably with oxygen) before pitching the yeast.

On brew day, mash in at 157.5 °F (69.7 °C) in 17 qts. (16 L) of water. Hold at this temperature for 60 minutes. Raise mash temperature to 170 °F (77 °C), hold for 5 minutes then recirculate until the wort clears. Run off wort and sparge with water hot enough to keep the grain bed around 170 °F (77 °C). Collect 6.75 gallons (25.5 L) of wort. (Check that final runnings do not drop below a specific gravity of 1.010 or the pH climbs above 5.8.) Boil wort for 100 minutes, adding hops at times indicated in the ingredient list. Ferment at 68 °F (20 °C). Dry hop in secondary for five days.

SIERRA NEVADA BREWING CO.'S CELEBRATION CLONE

(5 gallons/19 L, partial mash)
OG = 1.064 FG = 1.016
IBU = 65 SRM = 12 ABV = 6.8%

Ingredients

3 lbs. 1 oz. (1.4 kg) 2-row pale malt
2 lbs. (0.91 kg) light dried malt extract
4 lbs. (1.8 kg) light liquid malt extract (15 min.)
15 oz. (0.43 kg) caramel malt (60 °L)
9 AAU Chinook hops (100 min.)
(0.75 oz./21 g at 12% alpha acids)
5 AAU Centennial hops (100 min.)
(0.5 oz./14 g at 10% alpha acids)
7.5 AAU Cascade hops (10 min.)
(1.5 oz./43 g at 5% alpha acids)
0.66 oz. (19 g) Centennial hops (0 min.)
1.33 oz. (38 g) Cascade hops (0 min.)
1.33 oz. (38 g) Cascade hops (dry hop)
0.66 oz. (19 g) Centennial hops (dry hop)
Wyeast 1056 (American Ale),
White Labs WLP001 (California Ale), or
Safale US-05 yeast
(1.5 qt./1.5 L yeast starter)
1 cup corn sugar (if priming)

Step by Step

Mash grains at 157.5 °F (69.7 °C) in 5.5 qts. (5.2 L) of water. Hold at this temperature for 45 minutes. Collect 2.25 gallons (8.5 L) of wort. Add water to make at least 3 gallons (11 L) of wort. Stir in dried malt extract and boil wort for 100 minutes, adding hops at times indicated in the ingredient list. Keep some boiling water handy and do not let the boil volume dip below 3 gallons (11 L). With 15 minutes remaining in the boil, remove your brew pot from the flame and add the liquid malt extract, stirring thoroughly to avoid scorching. Return to heat and finish boiling. Once complete, chill wort, transfer to fermenter and top up to 5 gallons (19 L). Aerate wort and pitch yeast. Ferment at 68 °F (20 °C). Dry hop in secondary fer-

menter for five days.

SIERRA NEVADA BREWING CO.'S CELEBRATION CLONE

(5 gallons/19 L, extract with grains)
OG = 1.064 FG = 1.016
IBU = 65 SRM = 12 ABV = 6.8%

Ingredients

2.5 lbs (1.13 kg) light dried malt extract
5 lbs. (2.27 kg) light liquid malt extract (15 min.)
15 oz. (0.43 kg) caramel malt (60 °L)
9 AAU Chinook hops (100 min.)
(0.75 oz./21 g at 12% alpha acids)
5 AAU Centennial hops (100 min.)
(0.5 oz./14 g at 10% alpha acids)
7.5 AAU Cascade hops (10 min.)
(1.5 oz./43 g at 5% alpha acids)
0.66 oz. (19 g) Centennial hops (0 min.)
1.33 oz. (38 g) Cascade hops (0 min.)
1.33 oz. (38 g) Cascade hops (dry hop)
0.66 oz. (19 g) Centennial hops (dry hop)
Wyeast 1056 (American Ale),
White Labs WLP001 (California Ale), or
Safale US-05 yeast
(1.5 qt./1.5 L yeast starter)
1 cup corn sugar (for priming)

Step by Step

Steep grains at 160 °F (71 °C) in 3 qts. (2.9 L) of water. Rinse grains with 2 qts. (2 L) of 170 °F (77 °C) water. Add water to brewpot to make at least 3 gallons (11 L) of wort. Stir in dried malt extract and boil wort for 100 minutes, adding hops at times indicated in the ingredient list. Keep some boiling water handy and do not let the boil volume dip below 3 gallons (11 L). With 15 minutes remaining in the boil, remove your brew pot from the flame and add the liquid malt extract, stirring thoroughly to avoid scorching. Return to heat and finish boiling. Chill wort and transfer to fermenter. Top fermenter up to 5 gallons (19 L). Aerate wort and pitch yeast. Ferment at 68 °F (20 °C). Dry hop in secondary fermenter.

Simtra Mosalaxy IPA

(5 gallons/19 L, all-grain)
OG = 1.067 FG = 1.016
IBU = 80+ SRM = 14 ABV = 7%

Ingredients

13.5 lbs. (6.1 kg) Muntons Maris Otter malt blend
8 oz. (0.22 kg) Fawcett dark crystal malt (120 °L)
8 oz. (0.22 kg) Muntons crystal malt (60 °L)
8 oz. (0.22 kg) Weyermann Caraamber® malt (28 °L)
13.8 AAU Citra® hops, leaf (first wort hop)

(1 oz./28 g at 13.8% alpha acids)
14.1 AAU Simcoe® hops, leaf (first wort hop)
(1 oz./28 g at 14.1% alpha acids)
12.4 AAU Mosaic™ hops, pellets (15 min.)
(1 oz./28 g at 12.4% alpha acids)
13.8 AAU Citra® hops, leaf (10 min.)
(1 oz./28 g at 13.8% alpha acids)
16 AAU Galaxy hops, pellets (5 min.)
(1 oz./28 g at 16% alpha acids)
1 oz. (28 g) AU Topaz hops, pellets (hop stand)
1 oz. (28 g) Mosaic™ hops, pellets (hop stand)
1 oz. (28 g) Galaxy hops, pellets (hop stand)
1 oz. (28 g) Citra® hops, leaf (hop stand)
1 oz. (28 g) Simcoe® hops, leaf (hop stand)
1 oz. (28 g) Galaxy hops, pellets (dry hop)
1 oz. (28 g) Citra® hops, leaf (dry hop)
1 oz. (28 g) Simcoe® hops, leaf (dry hop)
1 oz. (28 g) Mosaic™ hops, pellets (dry hop)
Safale US-05 or White Labs
WLP001 (California Ale) or Wyeast
1056 (American Ale) yeast
¾ cup corn sugar (if priming)

Step by Step

Mash the grains with strike water to achieve 155 °F (68 °C). Rest for 60 minutes until conversion is complete. Sparge with enough water to collect 7.5 gallons (28.4 L) in the kettle. Add the first wort hop additions during the sparge. Boil for 90 minutes adding kettle hops at the times indicated. Chill the wort to 150 °F (66 °C), then add the hop stands. After 50 minutes, chill to 68 °F (20 °C). Pitch the yeast, then aerate. Ferment at 68 °F (20 °C). Transfer the beer onto the dry hops in a secondary vessel. Dry hop for two weeks. Prime to 2.5 volumes of CO₂.

SIMTRA MOSALAXY IPA

(5 gallons/19 L, extract with grains)
OG = 1.067 FG = 1.016
IBU = 80+ SRM = 15 ABV = 7%

Ingredients

9.5 lbs. (4.3 kg) Maris Otter liquid malt extract
8 oz. (0.22 kg) Fawcett dark crystal malt (120 °L)
8 oz. (0.22 kg) Muntons crystal malt (60 °L)
8 oz. (0.22 kg) Weyermann Caraamber® malt (28 °L)
13.8 AAU Citra® hops, leaf (first wort hop)
(1 oz./28 g at 13.8% alpha acids)
14.1 AAU Simcoe® hops, leaf (first wort hop)
(1 oz./28 g at 14.1% alpha acids)
12.4 AAU Mosaic™ hops, pellets (15 min.)
(1 oz./28 g at 12.4% alpha acids)
13.8 AAU Citra® hops, leaf (10 min.)
(1 oz./28 g at 13.8% alpha acids)
16 AAU Galaxy hops, pellets (5 min.)
(1 oz./28 g at 16% alpha acids)



- 1 oz. (28 g) AU Topaz hops, pellets (hop stand)
- 1 oz. (28 g) Mosaic™ hops, pellets (hop stand)
- 1 oz. (28 g) Galaxy hops, pellets (hop stand)
- 1 oz. (28 g) Citra® hops, leaf (hop stand)
- 1 oz. (28 g) Simcoe® hops, leaf (hop stand)
- 1 oz. (28 g) Galaxy hops, pellets (dry hop)
- 1 oz. (28 g) Citra® hops, leaf (dry hop)
- 1 oz. (28 g) Simcoe® hops, leaf (dry hop)
- 1 oz. (28 g) Mosaic™ hops, pellets (dry hop)
- Safale US-05 or White Labs WLP001 (California Ale) or Wyeast 1056 (American Ale) yeast
- ¾ cup corn sugar (if priming)

Step by Step

Place your crushed grains in a bag and soak in one gallon (4 L) 160 °F (71 °C) water for 20 minutes. Rinse the grains with 2 qts. (2 L) hot water. Add water until there is about 7.5 gallons (28.4 L) in the kettle. Bring to a boil, remove the kettle from heat and stir in the malt extract. Add the first wort hop additions and return the wort to heat. Follow the remainder of the all-grain recipe.

Stefan Shoemaker's Gluten-Free American IPA

(5 gallons/19 L, extract only)
OG = 1.061 FG = 1.012
IBU = 43 SRM = 13 ABV = 5.9%

Ingredients

- 7 lbs. (3.2 kg) Briess white sorghum syrup
- 8 oz. (0.23 kg) molasses
- 6 oz. (0.17 kg) Belgian dark candi sugar
- 9 oz. (0.26 kg) honey (0 min.)
- 14 AAU Cluster hops (60 min.)
(2 oz./57 g at 7% alpha acids)
- 2.9 AAU Cascade hops (15 min.)
(0.5 oz./14 g at 5.75% alpha acids)
- 2.5 AAU Fuggle hops (15 min.)
(0.5 oz./14 g at 5% alpha acids)
- 2.9 AAU Cascade hops (1 min.)
(0.5 oz./14 g at 5.75% alpha acids)
- 2.5 AAU Fuggle hops (1 min.)
(0.5 oz./14 g at 5% alpha acids)
- 1 oz. (28 g) Cascade hops (dry hop)
- 1 tsp. gypsum (60 min.)
- 1 tsp. diammonium phosphate (DAP) (15 min.)
- 1 tsp. Irish moss (15 min.)
- Safale US-05 yeast
- ¾ cup corn sugar (if priming)

Step by Step

Bring 3 gallons (11 L) of water to boil and add the sorghum, molasses, and candi sugar. Boil time is 60 minutes. Add the hops and

other ingredients as listed. After the boil is complete, add the honey then chill to 65 °F (18 °C). Transfer to a carboy, top up with cool water to reach 5 gallons (19 L) and pitch the yeast. Ferment at 68 °F (20 °C) for seven days, rack to a secondary and condition for another seven days at 68 °F (20 °C).

Stone Brewing Co.'s Stone IPA clone

(5 gallons/19 L, all-grain)
OG = 1.065 FG = 1.012
IBU = 77 SRM = 6 ABV = 6.9%

Ingredients

- 12.5 lbs. (5.7 kg) 2-row pale malt
- 1 lb. (0.45 kg) crystal malt (15 °L)
- 10.9 AAU Magnum hops (90 min.)
(0.75 oz./21 g at 14% alpha acids)
- 19 AAU Centennial hops (0 min.)
(2 oz./57 g at 9.5% alpha acids)
- 1 oz. (28 g) Centennial hops (dry hop)
- 0.5 oz. (14 g) Chinook hops (dry hop)
- 1 tsp. Irish moss (15 min.)
- White Labs WLP002 (English Ale) yeast
(1.5 qt./1.5 L yeast starter)
- ¾ cup corn sugar (if priming)

Step by Step

Mash at 149 °F (65 °C). Boil for 90 minutes adding hops and Irish moss at the times indicated. After the 90-minute boil is complete, remove from heat and toss in the flameout addition of Centennial. Give the wort a stir to create a whirlpool and let settle for 30 minutes. After that time, cool the wort and aerate heavily. Pitch the yeast and ferment at 68 °F (20 °C). After primary fermentation is complete, add the dry hops and let the beer sit on the dry hops for three to five days.

STONE BREWING CO.'S STONE IPA CLONE

(5 gallons/19 L, extract with grains)
OG = 1.065 FG = 1.012
IBU = 77 SRM = 6 ABV = 6.9%

Ingredients

- 5 lbs. (2.3 kg) light dried malt extract
- 2 lbs. (0.91 kg) light liquid malt extract (15 min.)
- 1 lb. (0.45 kg) crystal malt (15 °L)
- 10.9 AAU Magnum hops (90 min.)
(0.75 oz./21 g at 14% alpha acids)
- 19 AAU Centennial hops (0 min.)
(2 oz./57 g at 9.5% alpha acids)
- 1 oz. (28 g) Centennial hops (dry hop)
- 0.5 oz. (14 g) Chinook hops (dry hop)
- 1 tsp. Irish moss (15 min.)
- White Labs WLP002 (English Ale) yeast
(1.5 qt./1.5 L yeast starter)

¾ cup corn sugar (if priming)

Step by Step

Steep crushed grains in 2 gallons (7.6 L) of water at 170 °F (77 °C) for 20 minutes. Add water to make 4.5 gallons (17 L) of wort, add dried malt extract and bring to a boil. Boil for 60 minutes, adding hops at times indicated. Add liquid malt extract for last 15 minutes of the boil. After the boil is complete, remove from heat and toss in the flameout addition of Centennial. Give the wort a stir to create a whirlpool and let settle for 30 minutes. After that time, cool the wort and transfer to a fermenter. Top off the fermenter to 5 gallons (19 L), aerate the wort heavily and pitch yeast. Ferment at 68 °F (20 °C). Dry hop for three to five days and then bottle or keg.

The DaVinci Conundrum

(5 gallon/19 L, partial mash)
OG = 1.072 FG = 1.016
IBU = 75 SRM = 12 ABV = 7.7%

Because of its high IBU target, this beer uses the Texas Two-Step method of wort production creating two separate batches of wort and combining them in the fermenter.

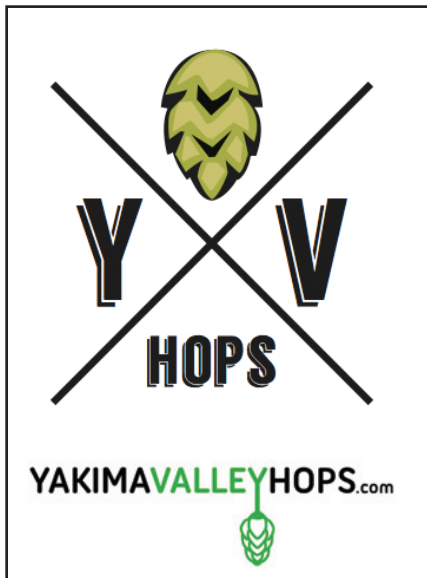
Ingredients

Step One:

- 3.25 lbs. (1.5 kg) Munich malt (9 °L)
- 8 oz. (0.23 kg) crystal malt (40 °L)
- 3 oz. (85 g) crystal malt (60 °L)
- 1 oz. (28 g) chocolate malt
- 2 lbs. (0.91 kg) Briess light dried malt extract
- 7 AAU Chinook hops (60 min.)
(0.58 oz./17 g at 12% alpha acids)
- 4.4 AAU Centennial hops (20 min.)
(0.40 oz./11 g at 10% alpha acids)
- 3.6 AAU Amarillo® hops (10 min.)
(0.36 oz./10 g at 10% alpha acids)
- 0.5 oz. (14 g) Cascade hops (0 min.)
- ½ tsp Irish moss (15 min.)
- Wyeast 1272 (American Ale II) or White Labs WLP051 (California V) yeast
(0.75 qts./~0.75 L yeast starter)

Step Two:

- 4 lbs. Briess light dried malt extract
- 7 AAU Magnum hops (60 min.)
(0.46 oz./13 g of 15% alpha acids)
- 4 AAU Ahtanum™ hops (20 min.)
(0.66 oz./19 g of 6% alpha acids)
- 4 AAU Ahtanum™ hops (10 min.)
(0.66 oz./19 g of 6% alpha acids)
- 0.5 oz. (14 g) Ahtanum™ hops (0 min.)
- 1.5 oz. (43 g) Cascade whole hops (dry hops)
- ½ tsp Irish moss (15 min.)
- ¾ cup corn sugar (if priming)



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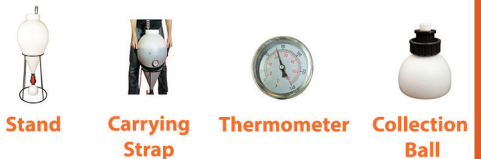
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Step By Step

Step One: Put crushed grains in a large nylon steeping bag. Heat 5.5 qts. (5.2 L) of water to 167 °F (75 °C) and pour this water into your 2-gallon (7.6-L) cooler. Slowly submerge grain bag, using a large brewing spoon to ensure that the crushed grain mixes completely with the water.

Let mash rest, starting at 156 °F (69 °C) for 30 minutes. While mash is resting, heat 1 gallon (3.8 L) of water to a boil in your brewpot and 5.5 qts. (5.2 L) of water to 180 °F (82 °C) in a large kitchen pot. Recirculate by drawing off a pint or two of wort from the cooler and returning it to the top of the mash. Repeat until wort is clear or 3 quarts (~3 L) have been recirculated.

Next, run off entire first wort and add to boiling water in kettle. Add 180 °F (82 °C) water to cooler until liquid level is the same as during the first mash. Let rest for 5 minutes, then recirculate and run off wort as before. Bring wort to a boil, add dried malt extract and bittering hops and boil for 60 minutes. Add hops at times indicated in recipe list. Add Irish moss with 15 minutes left in boil. After boil, cool wort until side of brewpot is cool to the touch.

Transfer wort to fermenter, add water to make 2.5 gallons (9.4 L) (if necessary), aerate well and pitch the yeast from your yeast starter. Let ferment at 70 °F (21 °C).

Step Two: 16–24 hours after step one, bring 3 gallons (11 L) of water to a boil. Stir in dried malt extract and bring back to a boil. Add Magnum hops and begin 60-minute boil, adding Ahtanum™ hops at times indicated. Add Irish moss with 15 minutes remaining. Cool wort to 70 °F (21 °C) and siphon into fermenting wort from step one. Add water to make 5 gallons (19 L), if needed. Aerate combined wort only if step one wort was not fermenting vigorously. Let ferment at 70 °F (21 °C). Add dry hops in secondary. After four days bottling or keg.

West Coast Style IPA

(5 gallons/19 L, all grain)
OG = 1.070 FG = 1.014
IBU = 100+ SRM = 8 ABV = 7.4%

Ingredients

- 12.1 lbs. (5.5 kg) Great Western US domestic two-row malt (or similar)
- 1.1 lbs. (0.5 kg) Bairds carastan malt (35 °L) (or similar)
- 1.1 lbs. (0.5 kg) Briess Carapils® malt (2 °L) (or similar)
- 12 AAU Simcoe® hops (90 min.) (1 oz./28 g at 12% alpha acids)

- 3.5 AAU Columbus hops (60 min.) (0.25 oz./7 g at 14% alpha acids)
- 3 AAU Simcoe® hops (60 min.) (0.25 oz./7 g at 12% alpha acids)
- 3.5 AAU Columbus hops (30 min.) (0.25 oz./7 g at 14% alpha acids)
- 3 AAU Simcoe® hops (30 min.) (0.25 oz./7 g at 12% alpha acids)
- 10.5 AAU Columbus hops (15 min.) (0.75 oz./21 g at 14% alpha acids)
- 9 AAU Simcoe® hops (15 min.) (0.75 oz./21 g at 12% alpha acids)
- 6 AAU Cascade hops (10 min.) (1 oz./28 g at 6% alpha acids)
- 7 AAU Columbus hops (1 min.) (0.5 oz./14 g at 14% alpha acids)
- 6 AAU Simcoe® hops (1 min.) (0.5 oz./14 g at 12% alpha acids)
- 0.5 oz. (14 g) Columbus hops (dry hop)
- 0.5 oz. (14 g) Simcoe® hops (dry hop)
- 0.5 oz. (14 g) Centennial hops (dry hop)
- 0.5 oz. (14 g) Amarillo® hops (dry hop)
- White Labs WLP001 (California Ale), Wyeast 1056 (American Ale), or Safale US-05 yeast
- ¾ cup corn sugar (if priming)

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 152 °F (67 °C). Hold the mash at 152 °F (67 °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 6.5 gallons (25 L) and the gravity is 1.054.

Once the wort is boiling, add the bittering hops. The total wort boil time is 90 minutes. Follow the hopping schedule and add Irish moss or other kettle finings with 15 minutes left in the boil. Chill the wort to 67 °F (19 °C) and aerate thoroughly. The proper pitch rate is 12 grams of rehydrated dry yeast, 2.5 packages of liquid yeast, or 1 package of liquid yeast in a 3-liter starter.

Ferment around 67 °F (19 °C) until the yeast drops clear. Transfer to another vessel and dry hop for one week at 62 °F (17 °C). Rack to a keg and force carbonate or rack to a bottling bucket, add priming sugar and bottle your beer.

WEST COAST STYLE IPA

(5 gallons/19 L, extract with grains)
OG = 1.070 FG = 1.014
IBU = 100+ SRM = 8 ABV = 7.4%

Ingredients

- 6.75 lbs. (3.1 kg) extra light dried malt

- extract
- 1.1 lbs. (0.5 kg) Bairds carastan malt (35 °L) (or similar)
- 1.1 lbs. (0.5 kg) Briess Carapils® (2 °L) (or similar)
- 12 AAU Simcoe® hops (90 min.) (1 oz./28 g at 12% alpha acids)
- 3.5 AAU Columbus hops (60 min.) (0.25 oz./7 g at 14% alpha acids)
- 3 AAU Simcoe® hops (60 min.) (0.25 oz./7 g at 12% alpha acids)
- 3.5 AAU Columbus hops (30 min.) (0.25 oz./7 g at 14% alpha acids)
- 3 AAU Simcoe® hops (30 min.) (0.25 oz./7 g at 12% alpha acids)
- 10.5 AAU Columbus hops (15 min.) (0.75 oz./21 g at 14% alpha acids)
- 9 AAU Simcoe® hops (15 min.) (0.75 oz./21 g at 12% alpha acids)
- 6 AAU Cascade hops (10 min.) (1 oz./28 g at 6% alpha acids)
- 7 AAU Columbus hops (1 min.) (0.5 oz./14 g at 14% alpha acids)
- 6 AAU Simcoe® hops (1 min.) (0.5 oz./14 g at 12% alpha acids)
- 0.5 oz. (14 g) Columbus hops (dry hop)
- 0.5 oz. (14 g) Simcoe® hops (dry hop)
- 0.5 oz. (14 g) Centennial hops (dry hop)
- 0.5 oz. (14 g) Amarillo® hops (dry hop)
- White Labs WLP001 (California Ale), Wyeast 1056 (American Ale), or Safale US-05 yeast
- ¾ cup corn sugar (if priming)

Step by Step

Mill or coarsely crack the specialty malt and place loosely in a grain bag. Avoid packing the grains too tightly in the bag, using more bags if needed. Steep the bag in about 1 gallon (~4 liters) of water at roughly 170 °F (77 °C) 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 for a few minutes while you add the malt extract. Do not squeeze the bags. Add enough water to the steeping liquor and malt extract to make a pre-boil volume around 6.5 gallons (25 L) and the gravity is 1.054.

Once the wort is boiling, add the bittering hops. The total wort boil time is 90 minutes. Follow the hopping schedule and add Irish moss or other kettle finings with 15 minutes left in the boil. Chill the wort to 67 °F (19 °C) and aerate thoroughly. The proper pitch rate is 12 grams of rehydrated dry yeast, 2.5 packages of liquid yeast, or 1 package of liquid yeast in a 3-liter starter.

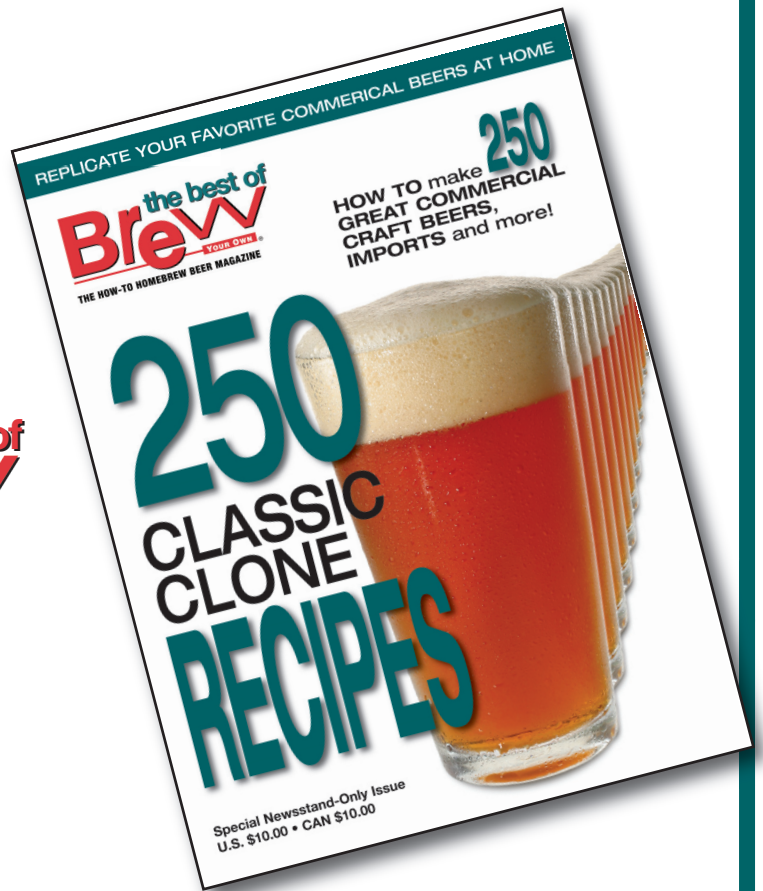
Ferment around 67 °F (19 °C) until the yeast drops clear. Transfer to another vessel and dry hop for one week at 62 °F (17 °C). Rack to a keg and force carbonate or rack to a bottling bucket, add priming sugar and bottle your beer.

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DOUBLE IPA

by JAMIL ZAINASHEFF



Like many people, when I was new to craft beer I favored beers that had a maltier balance, ones that were not so bitter. At that time, a homebrew shop owner told me that most people start out preferring malty beer styles, but eventually everyone craves hoppy beers. He was right and it didn't take long before I began to appreciate and then crave beers with a bold hop bitterness, flavor, and aroma. India pale ale quickly became an everyday beer for me. I think this appreciation of hop bitterness and character eventually develops in almost all craft beer lovers and for many, that craving just can't be satisfied. Like horror movie zombies hungry for brains, hoppy beer lovers seek out new beers to satisfy their ever-increasing hunger for hop bitterness, flavor, and aroma. For those infected with this *Humulus lupulus* disease, one of the best cures on the market is a couple of pints of double IPA.

Double IPA (or imperial IPA, as it is sometimes referred) is a beer bigger in alcohol strength, hop bitterness, and hop character than standard India pale ale. However, the malt character in double IPA is not necessarily bigger than that found in an American IPA. Too big a malt character makes a beer more like a barleywine. Often brewers

will ask, what is the difference between a double IPA and an American barleywine? American barleywine has a much richer malt character, more body, more alcohol and less hop character than a double IPA. A barleywine is generally something you sip, while a double IPA is something you drink by the pint. Drinkability, despite an intense hop bitterness and intense hop character, is critical for a great double IPA.

A double IPA should be intensely hoppy. A drinker new to hoppy beers might consider the hop bitterness, flavor, and aroma overwhelming. The aroma and flavor are usually full of citrus and pine notes from the liberal use of American hop varieties. Grassy, resinous and fruity hop notes are also common. This style, like many American-style beers, has a clean fermentation character. Alcohol can be evident, but it should never really be hot or harsh. These beers range in appearance from golden to a reddish copper. While there are excellent examples of the style that are filtered clear, a hazy appearance is not a problem. Massive dry hopping can leave a beer quite hazy from all that hop goodness. The overall flavor should be about hops and malt is only a secondary characteristic. It should be a clean, relatively simple malt background that supports the massive hop load, but does not try to balance it. If

you want more balance with your hops, think about brewing an American barleywine instead. Same goes for the mouthfeel and finish. Double IPA never has more than a medium body and should have a dry to medium-dry finish. A big body or sweet finish is a flaw and more appropriate for a barleywine.

While one might describe double IPA as a bigger than normal IPA, you can't just make a bigger IPA. Well, you can, but the result is likely to be too heavy, with too much residual sweetness. The best double IPAs have a dry finish and the finishing gravity should be in the 1.010 to 1.015 (2.6 to 3.8 °P) range, no matter how big the starting gravity. This is a key facet of keeping the beer drinkable.

My good friend Mike "Tasty" McDole has won more than a few major awards for his double IPA, so I asked him what he considers to be the single most important aspect of brewing this style. He told me, "This is a very hop-forward beer and you cannot achieve that goal unless you keep the malt character from getting in the way. The best way to do that is to use simple sugar."

Russian River Brewing Company's Pliny the Elder, which many consider the finest example of this style, also uses simple sugar to ensure a dry, light malt character. I feel the addition of simple sugar (corn sugar, cane sugar, beet sugar) is critical to making a great example of this style. Put aside any fears you might have that adding sugar will make your beer too thin or "cidery." That is only an issue when using a very large percentage of sugar. Target around 10% of the grist as simple sugar. These easily fermentable sugars also assist in achieving a low finishing gravity. If you're an extract brewer

and need more attenuation, replace more of the base malt extract with simple sugar. If you need less attenuation, then shift the percentage in the other direction toward the base malt.

The majority of the grist in a double IPA is North American two-row malt or a light colored extract made from the same. A

richer and sweeter. If you want to make a darker beer, switching to darker specialty malts rather than increasing the amount of a lower color specialty malt, is the way to go. It does change the flavor, but it will help to preserve the dry finish required for the style. Keep in mind the best examples of this style, such as Pliny the Elder, are

“ While there are excellent examples of the style that are filtered clear, a hazy appearance is not a problem. Massive dry hopping can leave a beer quite hazy from all that hop goodness. ”

good quality North American two-row malt provides a nice background malty, clean, slightly bready character that is evident in the beer, but not overwhelming. That is what you want; malt character, but one that doesn't cover the hop character. If you decide to use an English pale ale malt, which is kilned a bit darker and has a bit richer malt flavor than the North American two-row, be cautious that any other specialty malts you add don't push the malt flavor over the top and begin to make the beer less drinkable.

In the best examples, the use of specialty malts for flavor and head retention is restrained. A small amount of crystal malt, for a subtle touch of caramel, is a nice addition. A little wheat is common in many recipes to improve head retention. Some examples obviously have more crystal and other specialty malts added, but that can negatively impact drinkability, as the beer starts becoming

all on the pale end of the range.

This is a great style for extract brewers, as there are plenty of high-quality pale malt extracts on the market and the focus in this style is really on the hops. When choosing an extract, avoid any with a low level of fermentability. If your favorite extract doesn't quite attenuate enough, swap out a little more of the malt extract with simple sugar the next time you brew this beer. For all-grain brewers, a single infusion mash works well. Target a mash temperature range of 148 to 152 °F (64–67 °C). If you are making a higher gravity beer or are approaching a double-digit percentage of specialty malts, use the lower end of this temperature range to ensure the beer attenuates enough. If you are making a smaller beer, use the higher end of the range to retain a bit more body.

The intense hop character of this beer style comes from a com-

bination of an insane amount of hops and selecting the right hop varieties. One very important thing to keep in mind is that the hop varieties and quantities are more important than their alpha acid levels. Once the bittering gets past a certain level, you're only interested in the oils, resins and other hop compounds that add flavor, aroma and mouthfeel. If you're getting ready to brew a double IPA recipe and you can't find Simcoe hops at 12% as the recipe calls for, don't worry about it. Simcoe at 10% or 14% is just fine. As long as the alpha acid range is somewhere in the ballpark. For most beer styles the bitterness to starting gravity ratio (IBU divided by original gravity) is somewhere between 0.3 and 0.7. A bitter beer like an American IPA would range around 1.0. For a double IPA, if your recipe's IBU/OG ratio isn't somewhere around 3.0+, then you're not adding enough hops.

Keep in mind that you're trying to build an intense, but harmonious hop character. Combining random hop varieties can result in some weird flavors. Hop selection is flexible, but many aficionados of this style consider the citrusy and evergreen characteristics of American-type hops a requirement. Columbus, Centennial, Simcoe, Chinook are all good choices. Lower alpha acid hops, such as Cascade are fine too, but you'll want to focus on the higher alpha acid hops. The higher alpha hops have characteristic resinous flavors and higher bittering potential, which will reduce the amount of hop vegetable matter that ends up in your kettle. When selecting hop varieties you can select as many varieties as you want, but try to make sure they're all grouped into no more than two hop flavor families. For example, select hops that all share citrusy and evergreen character-

istics as their prominent attribute. Don't start mixing herbal, floral, spicy, citrus, and evergreen all in one recipe.

To achieve an intense hop character, you can't be shy in the amount of hops you add or the timing of the additions. A 5-gal-

“ Keep in mind that you're trying to build an intense, but harmonious hop character. Combining random hop varieties can result in some weird flavors. ”

lon (19-L) batch of beer requires around $\frac{3}{4}$ to 1 lb. (0.34 to 0.45 kg) of hop pellets. As for timing of the additions, you do want to ensure you have hops throughout the boil and after. The Dogfish Head brewery has gone as far as inventing a continuous hopping machine to add hops throughout the boil. I don't think it is necessary to go that far, but making sure you have some hops at the beginning of the boil, mid-way through the boil, at the end of the boil, and dry hop additions at the end of fermentation is important to proper flavor development.

The amount of hop material in the kettle and fermenter will be massive. You might want to scale up a 5-gallon (19-L) double IPA recipe to 6 gallons (23 L) to get a finished 5 gallons (19 L), otherwise expect to end up with around 4 gallons (15 L) of finished beer. You might ask yourself if such a huge amount of hops and such losses in wort volume are worth the trouble. If you're a hop aficionado, the answer is absolutely and astoundingly yes! There is a reason that many of the clone recipes on the following pages are annually ranked among the top

beers in the world on beer rating websites and magazines.

Yeast selection is simple for this style. You want a yeast strain with a clean, neutral character and one that will attenuate well. My favorites are White Labs WLP001 (California Ale), Wyeast

1056 (American Ale) and Fermentis Safale US-05. Other yeast strains worthy of experimentation are White Labs WLP051 (California V), Wyeast 1272 (American Ale II), and Wyeast 2450 (Denny's Favorite 50).

Ferment double IPAs with plenty of healthy, clean yeast at a moderate temperature. I like to start fermentation around 67 °F (19 °C), slowly raising the temperature to 70 °F (21 °C) as the fermentation begins to slow. This helps control any hot, solvent-like notes in this higher than normal ABV beer. Ramping up the temperature as the fermentation begins to slow will help ensure complete attenuation. If you are a brewer that repitches yeast from one batch to another, do not reuse the yeast from a double IPA. The high hopping level has considerable negative impact on yeast viability (as does the alcohol content of this beer), so it is better not to reuse this yeast.

One last bit of advice. These very hoppy beers are best consumed within the first couple months to fully enjoy the brightest, most intense hop character.

The Alchemist's Heady Topper clone

(5.5 gallons/21 L, all-grain)
OG = 1.076 FG = 1.014
IBU = 100+ SRM = 6 ABV = 8%

Ingredients

15 lbs. (6.8 kg) British pale ale malt
6 oz. (170 g) Caravienne® malt
1 lb. (0.45 kg) turbinado sugar (10 min.)
7 AAU Magnum hops (60 min.)
(0.5 oz./14 g at 14% alpha acids)
13 AAU Simcoe® hops (30 min.)
(1 oz./28 g at 13% alpha acids)
5.75 AAU Cascade hops (0 min.)
(1 oz./28 g at 5.75% alpha acids)
8.6 AAU Apollo hops (0 min.)
(0.5 oz./14 g at 17.2% alpha acids)
13 AAU Simcoe® hops (0 min.)
(1 oz./28 g at 13% alpha acids)
10.5 AAU Centennial hops (0 min.)
(1 oz./28 g at 10.5% alpha acids)
7 AAU Columbus hops (0 min.)
(0.5 oz./14 g at 14% alpha acids)
1 oz. (28 g) Chinook hops (primary dry hop)
1 oz. (28 g) Apollo hops (primary dry hop)
1 oz. (28 g) Simcoe® hops (primary dry hop)
1.25 oz. (35 g) Centennial hops
(secondary dry hop)
1.25 oz. (35 g) Simcoe® hops
(secondary dry hop)
1 Tbsp. Polyclar
The Yeast Bay (Vermont Ale), GigaYeast
GY054 (Vermont IPA), East Coast Yeast
ECY29 (North East Ale) or Omega Yeast
Labs (DIPA Ale) yeast
⅓ cup corn sugar (if priming)

Step by Step

Achieve a target mash temperature of 153 °F (67 °C). Boil for 60 minutes, adding the hops as instructed. After the boil is complete, begin a whirlpool in the kettle and let the knockout hops rest in the hot wort for at least 30 minutes before chilling. Chill the wort rapidly to 68 °F (20 °C). Ferment at 68 °F (20 °C) for one week.

After final gravity has been achieved, add a clarifying agent such as Polyclar. Three days later add your first set of dry hops to the primary fermenter. After seven days, rack the beer off the dry hops and yeast cake into a keg or secondary fermenter. Purge with carbon dioxide if available. Add the second set of dry hops to the keg or secondary fermenter. After five days add priming sugar and bottle, or keg.

THE ALCHEMIST'S HEADY TOPPER CLONE

(5.5 gallons/21 L, extract with grains)

OG = 1.076 FG = 1.014
IBU = 100+ SRM = 6 ABV = 8%

Ingredients

9.9 lbs. (4.5 kg) light liquid malt extract
1 lb. (0.45 kg) extra light dried malt extract
6 oz. (170 g) Caravienne® malt
1 lb. (0.45 kg) turbinado sugar (10 min.)
7 AAU Magnum hops (60 min.)
(0.5 oz./14 g at 14% alpha acids)
13 AAU Simcoe® hops (30 min.)
(1 oz./28 g at 13% alpha acids)
5.75 AAU Cascade hops (0 min.)
(1 oz./28 g at 5.75% alpha acids)
8.6 AAU Apollo hops (0 min.)
(0.5 oz./14 g at 17.2% alpha acids)
13 AAU Simcoe® hops (0 min.)
(1 oz./28 g at 13% alpha acids)
10.5 AAU Centennial hops (0 min.)
(1 oz./28 g at 10.5% alpha acids)
7 AAU Columbus hops (0 min.)
(0.5 oz./14 g at 14% alpha acids)
1 oz. (28 g) Chinook hops (primary dry hop)
1 oz. (28 g) Apollo hops (primary dry hop)
1 oz. (28 g) Simcoe® hops (primary dry hop)
1.25 oz. (35 g) Centennial hops
(secondary dry hop)
1.25 oz. (35 g) Simcoe® hops
(secondary dry hop)
1 Tbsp. Polyclar
The Yeast Bay (Vermont Ale), GigaYeast
GY054 (Vermont IPA), East Coast Yeast
ECY29 (North East Ale) or Omega Yeast
Labs (DIPA Ale) yeast
⅓ cup corn sugar (if priming)

Step by Step

Steep the crushed grains in 2 qts. (1.9 L) for 20 minutes at 155 °F (68 °C). Rinse the grain with hot water and add water to achieve 6.5 gallons (25 L) in your kettle. Turn off the heat, add the malt extract to your kettle and stir until fully dissolved. Boil for 60 minutes, adding the hops as instructed. After the boil is complete, begin a whirlpool in the kettle and let the knockout hops rest in the hot wort for at least 30 minutes before chilling. Chill the wort rapidly to 68 °F (20 °C). Ferment at 68 °F (20 °C) for one week. After final gravity has been achieved, add a clarifying agent such as Polyclar. Allow three days for clarifying agent to work, then add the first set of dry hops to the primary fermenter. After seven days, rack beer off the dry hops and yeast cake either into a keg or secondary fermenter. Try to purge with carbon dioxide if it is available. Add the second set of dry hops to the keg or secondary fermenter. After five days prime and bottle, or keg.

Tips for Success:

The goal is to get at least 5.5 gallons (21 L)

into your fermenter to compensate for the loss of wort that will occur during dry hopping. Make sure your primary fermenter has enough headspace to accommodate that much wort plus a large kräusen. John Kim-mich's biggest piece of advice for trying to clone this beer: "Technique and water treatment." For more information about brewing water treatments, visit <http://byo.com/story1547> or download *BYO's* brewing water spreadsheet at <http://byo.com/resources/brewwater>

For extract brewers who use concentrated boils (usually around 3 gallons/11 L), try adding most of the extract near the end of the boil. This will keep the gravity low, which may help alpha acids convert into iso-alpha acids.

The Alchemist's Holey Moley clone

5 gallons/19 L, all-grain
OG = 1.078 FG = 1.016
IBU = 75 SRM = 9 ABV = 8.7%

Ingredients

14 lbs. (6.4 kg) 2-row pale malt
1.7 lbs. (0.77 kg) Munich malt
13 oz. (0.36 kg) British light crystal malt (37 °L)
7 AAU Magnum hops (60 min.)
(0.5 oz./14 g at 14% alpha acids)
5.5 AAU Cascade hops (30 min.)
(1 oz./28 g at 5.5% alpha acids)
7.8 AAU Cascade hops (5 min.)
(1.5 oz./42 g at 5.5% alpha acids)
18 AAU Amarillo® hops (0 min.)
(2 oz./56 g at 9% alpha acids)
2 oz. (56 g) Cascade hops (dry hop)
3 oz. (85 g) Amarillo® hops (dry hop)
1 Tbsp. Polyclar
The Yeast Bay (Vermont Ale), GigaYeast
GY054 (Vermont IPA), East Coast Yeast
ECY29 (North East Ale) or Omega Yeast
Labs (DIPA Ale) yeast
⅓ cup corn sugar (if priming)

Step by Step

Achieve a target mash temperature of 155 °F (68 °C). Boil 60 minutes, adding the hops as instructed. After the boil, whirlpool in the kettle and let the hops rest in the hot wort for at least 30 minutes before chilling. Chill the wort rapidly to 68 °F (20 °C).

Ferment at 68 °F (20 °C) for one week. After the final gravity has been achieved, add a clarifying agent such as Polyclar. Allow three days for clarifying agent to work, then add the dry hops to primary fermenter. After seven days, rack beer off dry hops and yeast cake either into a keg or bottles. Purge with carbon dioxide if it is available to you.



THE ALCHEMIST'S HOLEY MOLEY CLONE

(5 gallons/19 L, extract with grain)
OG = 1.078 FG = 1.016
IBU = 75 SRM = 9 ABV = 8.7%

Ingredients

9.9 lbs. (4.5 kg) light liquid malt extract
1.1 lbs. (0.5 kg) Munich liquid malt extract
13 oz. (0.36 kg) British light crystal malt (37 °L)
7 AAU Magnum hops (60 min.)
(0.5 oz./14 g at 14% alpha acids)
5.5 AAU Cascade hops (30 min.)
(1 oz./28 g at 5.5% alpha acids)
7.8 AAU Cascade hops (5 min.)
(1.5 oz./42 g at 5.5% alpha acids)
18 AAU Amarillo® hops (0 min.)
(2 oz./56 g at 9% alpha acids)
2 oz. (56 g) Cascade hops (dry hop)
3 oz. (85 g) Amarillo® hops (dry hop)
1 Tbsp. Polyclar
The Yeast Bay (Vermont Ale), GigaYeast
GY054 (Vermont IPA), East Coast Yeast
ECY29 (North East Ale) or Omega Yeast
Labs (DIPA Ale) yeast
½ cup corn sugar (if priming)

Step by Step

Steep the crushed grains in 2 qts. (1.9 L) water for 20 minutes at 160 °F (71 °C). Rinse the grain with hot water and add water to achieve 6.5 gallons (25 L) in your kettle. Turn off the heat, add the malt extract to your kettle and stir until fully dissolved. Boil for 60 minutes, adding the hops as instructed. After the boil is complete, begin a whirlpool in the kettle and let the hops rest in the hot wort for at least 30 minutes before chilling.

Chill the wort rapidly to 68 °F (20 °C). Ferment at 68 °F (20 °C) for one week. After the final gravity has been achieved, add a clarifying agent such as Polyclar. Allow three days for the clarifying agent to work, then add dry hops to the primary fermenter. After seven days, rack the beer off of the dry hops and yeast cake either into a keg or bottles. Purge with carbon dioxide if it is available.

Tips for Success:

John Kimmich says that this beer was “dry hopped extensively with Cascade and Amarillo® hops,” which makes me believe he either used a lot of dry hops in one stage or dry hopped this beer in two stages. I decided to go with the former in my clone attempt. Kimmich is a very technique-oriented brewer, so don't be afraid to experiment with your dry hopping to try and find the best flavor profile. Bagging your hops in a muslin brewing bag commonly used for steeping grains can make them easier to retrieve when you are ready to remove them

from the beer. If you bag your dry hops, however, keep in mind that it can reduce the hops exposure to the beer. Remedy this by making sure you don't pack the bag of hops too tightly.

Be careful not to disturb the CO₂ blanket on top of the beer during dry hopping. After you add the dry hops to the fermenter, re-establish the CO₂ blanket by gently injecting CO₂ across the top of the beer (if you have CO₂ available to you in your homebrewery). If you have to open the fermenter for some reason during this period, repeat the process.

This beer's relatively high terminal gravity led me to believe all-grain brewers should not go too low with their mash temperature. Remember when brewing any beer with a high gravity to pitch a healthy amount of active yeast cells. Beers made from underpitched worts start slower, and increase the stress on the yeast, producing more esters and fusel alcohols. Consider making a yeast starter a day ahead of your brew day to generate a healthy population of yeast before pitching. A general rule of thumb for pitching ale yeast is that you need 0.75 million cells per milliliter of wort per degree Plato. This translates to about a 1-L starter if using a stir plate and about a 2-L starter if you only swirl the starter every few hours.

Bend Brewing Co.'s Hophead Imperial IPA clone

(5 gallons/19 L, all-grain)
OG = 1.079 FG = 1.017
IBU = 100+ SRM = 6 ABV = 8.7%

Ingredients

16 lbs. (7.3 kg) 2-row pale malt
8 oz. (0.23 kg) crystal malt (30 °L)
4.4 AAU Saaz hops (first wort hop)
(1.1 oz./31 g at 4% alpha acids)
19 AAU Chinook hops (90 min.)
(1.6 oz./45 g at 12% alpha acids)
16.2 AAU Northern Brewer hops (5 min.)
(1.8 oz./51 g at 9% alpha acids)
1.8 oz. (51 g) Cascade hops (0 min.)
1.5 oz. (43 g) Cascade hops (dry hop)
Wyeast 1968 (London ESB) or White Labs
WLP002 (English Ale) yeast
(2.5 qt./~2.5 L yeast starter)
¾ cups corn sugar (if priming)

Step by Step

Mash at 155 °F (68 °C) for 60 minutes. Total boil time is 90 minutes, adding the first wort hops to the brewpot during the sparge phase. Once the wort comes to a boil add the Chinook hops. Wait 85 minutes then add the Northern Brewer hops. After turning off

heat, wait five minutes then add the hop stand Cascade addition. Stir the wort vigorously then let settle for 15 minutes before chilling. Ferment at 68 °F (20 °C). Dry hop for seven days before bottling or kegging.

Extract option:

To get the specified level of bitterness, you can either perform a full-wort boil or perform a partial boil and add half the dried malt extract in the final 15 minutes of the boil. Replace all the 2-row pale malt with 8.5 lbs. (3.9 kg) light dried malt extract, added at the beginning of boil (or split if doing partial boil). Steep the cracked crystal malt in the brew water as the water is coming up to a boil. Remove the malt when the water hits about 170 °F (77 °C). The boil and fermentation schedule are the same as the all-grain version.

Brewdog's Hardcore IPA clone

(5 gallons/19 L, all-grain)
OG = 1.083 FG = 1.017
IBU = 150 SRM = 11 ABV = 9.2%

Ingredients

16 lbs. (7.26 kg) Maris Otter pale ale malt
0.4 lb. (0.18 kg) crystal malt (40 °L)
0.4 lb. (0.18 kg) caramalt (15 °L)
7.9 AAU Simcoe® hop pellets (90 min.)
(0.66 oz./19 g at 12% alpha acids)
9.2 AAU Columbus hop pellets (90 min.)
(0.66 oz./19 g at 14% alpha acids)
5.9 AAU Centennial hop pellets (90 min.)
(0.66 oz./19 g at 9% alpha acids)
14.4 AAU Simcoe® hop pellets (0 min.)
(1.2 oz./34 g at 12% alpha acids)
16.8 AAU Columbus hop pellets (0 min.)
(1.2 oz./34 g at 14% alpha acids)
10.8 AAU Centennial hop pellets (0 min.)
(1.2 oz./34 g at 9% alpha acids)
1.5 oz. (43 g) Simcoe® hop pellets
(dry hop)
1.5 oz. (43 g) Columbus hop pellets
(dry hop)
1.5 oz. (43 g) Centennial hop pellets
(dry hop)
Wyeast 1056 (American Ale),
White Labs WLP001 (California Ale)
or Safale US-05 yeast
(1.5 qt./~1.5 L yeast starter)
1 cup corn sugar (if priming)

Step by Step

Mash grain at 149 °F (65 °C) for 1 hour and sparge to collect about 6.5 gallons (25 L) of wort. Boil for 90 minutes with bittering hops added at the start and flameout hops at the end of the boil. Give the wort a stir to create a whirlpool and let stand for 15 minutes



prior to chilling the wort. Cool wort, transfer to fermenter and add yeast as a 1.5-qt. (1.5-L) starter prepared 2–3 days earlier. Oxygenate well and let ferment for 3–5 days. Rack the beer into a secondary fermenter and add dry hops in a sanitized muslin bag. Rack after one to two weeks and bottle or keg as desired.

BREWDOG'S HARDCORE IPA CLONE

(5 gallons/19 L, extract with grains)
OG = 1.083 FG = 1.017
IBU = 150 SRM = 11 ABV = 9.2%

Ingredients

- 11 lbs. (5 kg) Maris Otter liquid malt extract
- 0.4 lb. (0.18 kg) crystal malt (40 °L)
- 0.4 lb. (0.18 kg) caramalt (15 °L)
- 7.9 AAU Simcoe® hop pellets (90 min.)
(0.66 oz./19 g at 12% alpha acids)
- 9.2 AAU Columbus hop pellets (90 min.)
(0.66 oz./19 g at 14% alpha acids)
- 5.9 AAU Centennial hop pellets (90 min.)
(0.66 oz./19 g at 9% alpha acids)
- 14.4 AAU Simcoe® hop pellets (0 min.)
(1.2 oz./34 g at 12% alpha acids)
- 16.8 AAU Columbus hop pellets (0 min.)
(1.2 oz./34 g at 14% alpha acids)
- 10.8 AAU Centennial hop pellets (0 min.)
(1.2 oz./34 g at 9% alpha acids)
- 1.5 oz. (43 g) Simcoe® hop pellets (dry hop)
- 1.5 oz. (43 g) Columbus hop pellets (dry hop)
- 1.5 oz. (43 g) Centennial hop pellets (dry hop)
- Wyeast 1056 (American Ale),
White Labs WLP001 (California Ale)
or Safale US-05 yeast
(1.5 qt./~1.5 L yeast starter)
- 1 cup corn sugar (if priming)

Step by Step

To get the proper level of bitterness in your beer, you must be able to boil your full wort. Steep crushed pale malt in 3 qts. (2.8 L) of water at 149 °F (65 °C) for 45 minutes. Rinse grains with 1.5 qt. (1.4 L) of water at 169 °F (76 °C). Add “grain tea” and malt extract to 5.25 gallons (20 L) of boiling water in your kettle. Boil for 90 minutes with bittering hops added at the start and flameout hops at the end of the boil. Give the wort a stir to create a whirlpool and let stand for 15 minutes prior to chilling the wort. Cool wort, transfer to fermenter and add yeast as a 1.5-qt. (1.5-L) starter prepared two to three days earlier. Oxygenate well and let ferment for three to five days. Rack the beer into a secondary fermenter and add dry hops in a sanitized muslin bag. Rack after one to two weeks and bottle or keg as desired.

Dick's Brewing Co.'s Bottleworks IPA clone

(5 gallons/19 L, extract with grains)
OG = 1.080 FG = 1.018
IBU = 100+ SRM = 11 ABV = 8.6%

Ingredients

- 11.75 lbs. (5.3 kg) Briess golden light liquid malt extract
- 8 oz. (224 g) crystal malt (120 °L)
- 1 oz. (28 g) chocolate malt
- 34 AAU Columbus hops (60 min.)
(2.25 oz./63 g at 15% alpha acids)
- 15 AAU Columbus hops (20 min.)
(1 oz./28 g at 15% alpha acids)
- 15 AAU Columbus hops (0 min.)
(1 oz./28 g at 15% alpha acids)
- 1 tsp. Irish moss (15 min.)
- White Labs WLP001 (California Ale),
Wyeast 1056 (American Ale) or
Safale US-05 yeast
- ¾ cup of corn sugar (if priming)

Step by Step

Steep the crushed malts in 3 gallons (11 L) of water at 155 °F (68 °C) for 30 minutes. Remove grains from wort, add the malt syrup and bring to a boil. Add the Columbus bittering hops then boil for 60 minutes. Add the second addition of Columbus hops for the last 20 minutes of the boil and the Irish moss for the last 15 minutes. Add the remaining Columbus hops at the end of the boil and steep for five minutes. Now add the wort to 2 gallons (7.6 L) of cold water in a sanitary fermenter, and top off with cool water to 5.5 gallons (~21 L). Cool the wort to 75 °F (24 °C), aerate the beer heavily and pitch your yeast. Cool and ferment at 68 °F (20 °C). Dick's conditions this beer for approximately six weeks, then bottle or keg.

Tips for Success:

To get the full amount of bitterness in an extract IPA, you will need to do a full-wort boil. Also, although hop bitterness is thought not to exceed 100 IBUs, hop flavor and aroma may increase with additional hops. Consider adding more Columbus hops late in the boil if you're a real hophead.

All-grain option:

This is a single step infusion mash. Replace the malt extract with 18 lbs. (8.2 kg) of 2-row pale malt. Mash the three grains together at 155 °F (68 °C) for 60 minutes. Collect approximately 7 gallons wort (27 L) to boil for 90 minutes to collect 5.5 gallons (~21 L) in the fermenter. The remainder of the recipe is the same as the extract with grains recipe.

Dogfish Head Craft Brewery's 90-Minute IPA clone

(5 gallons/19 L, all-grain)
OG = 1.085 FG = 1.021
IBU = 90 SRM = 13 ABV = 9%

Ingredients

- 15.8 lbs. (7.2 kg) Pilsner malt
- 1.6 lbs. (0.73 kg) amber malt (35 °L)
- 16 AAU Amarillo® hops (90–0 min.)
(2 oz./57 g at 8% alpha acids)
- 8 AAU Simcoe® hops (90–0 min.)
(0.62 oz./17 g at 13% alpha acids)
- 8 AAU Warrior® hops (90–0 min.)
(0.53 oz./15 g at 15% alpha acids)
- 1 oz. (28 g) Amarillo® hops (dry hop)
- 0.5 oz. (14 g) Simcoe® hops (dry hop)
- 0.5 oz. (14 g) Warrior® hops (dry hop)
- 1 tsp. Irish moss (15 min.)
- Wyeast 1099 (Whitbread) or
Safale S-04 yeast
- ¾ cups corn sugar (if priming)

Step by Step

Mash in at 122 °F (50 °C), then raise the temperature to 149 °F (65 °C) until conversion is complete. Mash out to 170 °F (77 °C). Boil the wort for 105 minutes. Starting with 90 minutes left in the boil, begin slowly and evenly adding hops to the kettle. (This works out to a little over 0.25 oz. (7 g) of hops every 7.5 minutes.) Start fermentation at 71 °F (22 °C) and let raise to 74 °F (23 °C). Dry hop in secondary at 71 °F for 3–5 days, then cool to 32 °F (0 °C).

Partial mash option:

Replace Pilsner malt with 7.6 lbs. (3.45 kg) Pilsen dried malt extract and 1.75 lbs. (0.8 kg) of Pilsner malt. Steep crushed grains in 1.1 gallons (4 L) of water at 150 °F (66 °C) for 45 minutes, then remove grains and wash with 1 gallon (3.8 L) hot water. Top off the brewpot to 7 gallons (26.5 L) and add all the dried malt extract. Follow the remaining instructions in the all-grain recipe.

Double Trouble- Double IPA

(5 gallons/19 L, all-grain)
OG = 1.077 FG = 1.017
IBU = 80+ SRM = 8 ABV = 8.2%

Ingredients

- 12.5 lbs. (5.7 kg) Maris Otter British pale ale malt
- 8 oz. (227 g) Munich malt
- 4 oz. (113 g) British crystal malt (70–80 °L)
- 1.25 lb. (0.57 kg) cane sugar (20 min.)



- 21 AAU Chinook pellet hops (75 min.)
(1.75 oz./50 g at 12% alpha acids)
- 21 AAU Columbus pellet hops (75 min.)
(1.75 oz./50 g at 12% alpha acids)
- 9.5 AAU Centennial pellet hops (10 min.)
(1 oz./28 g at 9.5% alpha acids)
- 12 AAU Chinook pellet hops (10 min.)
(1 oz./28 g at 12% alpha acids)
- 2.5 oz. (71 g) Amarillo® whole hops (0 min.)
- 1 oz. (28 g) Columbus hops (dry hop)
- 1 oz. (28 g) Amarillo® hops (dry hop)
- White Labs WLP013 (London Ale) or
Wyeast 1028 (London Ale) yeast
- ¾ cup corn sugar (if priming)

Step by Step

Mash in grains with 160 °F (71 °C) water with a 1.25 quarts of water to 1 lb. grain ratio with 2 tablespoons of gypsum. Rest at 150 °F (66 °C) for 30 minutes. Recirculate the mash until clear. Start runoff then sparge with 168 °F (76 °C) water. Collect 6.5 gallons (25 L), boil to a final volume of 5.25 gallons (20 L) (about 75 minutes). Add the hops per the ingredients list. Add the cane sugar with 20 minutes left in the boil. After turning off heat, add the Amarillo® hops and give the wort a stir. Let sit for 10 minutes or so before chilling the wort to 70 °F (21 °C) and pitching the yeast. Ferment at 70 °F (21 °C) until primary fermentation is complete. Rack to secondary fermenter and dry hop for one week with 1 oz. (28 g) Columbus pellet hops and 1 oz. (28 g) Amarillo® pellet hops.

If bottling, prime with ¾ cup corn sugar. If kegging, add 1 oz. (28 g) Columbus whole hops and 1 oz. (28 g) Amarillo® whole hops to the hop sack, chill and force carbonate.

Extract with grains option:

Reduce pale malt to 1.25 lb. (0.57 kg). Steep grains at 150 °F (66 °C) in 2.75 qts. (2.6 L) of water for 30 minutes. Wash the grains with 2 qts. (2 L) hot water. Add water to make 6.5 gallons (25 L), stir in 6.25 lbs. (2.8 kg) Muntons light dried malt extract and boil to for 75 minutes adding the hops per the ingredients list. Add the cane sugar with 20 minutes left in the boil. After turning off heat, add the Amarillo® hops and give the wort a stir and let sit for 10 minutes or so. Chill the wort to 70 °F (21 °C) and pitch the yeast. Ferment at 70 °F (21 °C). Dry hop in secondary for one week.

Hair of the Dog Brewing Co.'s Blue Dot Double IPA clone

(5 gallons/19 L, all-grain)
OG = 1.072 FG = 1.010
IBU = 100+ SRM = 6 ABV = 8%

Ingredients

- 13.15 lbs. (6 kg) organic Pilsner malt
- 1.75 lbs. (0.8 kg) organic flaked rye
- 64 AAU Warrior® hops (75 min.)
(4 oz./113 g at 16% alpha acids)
- 56 AAU Magnum hops (40 min.)
(4 oz./113 g at 14% alpha acids)
- 48 AAU Columbus hops (10 min.)
(4 oz./113 g at 12% alpha acids)
- 5 oz. (142 g) Warrior® hops (dry hop)
- 5 oz. (142 g) Amarillo® hops (dry hop)
- Wyeast 1728 (Scottish Ale) or White Labs
WLP028 (Edinburgh Scottish Ale) yeast
(2 qt./2 L yeast starter)
- ¾ cup corn sugar (if priming)

Step by Step

This is a single infusion mash. Achieve a target mash temperature of 155 °F (68 °C). Collect roughly 8 gallons (30 L) of wort in your brewpot. Boil for a total of 180 minutes adding the hops at the times indicated in the ingredient list. After the boil, cool and ferment at 68 °F (20 °C). Dry hop for five to seven days and then bottle or keg.

HAIR OF THE DOG BREWING CO.'S BLUE DOT DOUBLE IPA CLONE

(5 gallons/19 L, extract with grains)
OG = 1.072 FG = 1.010
IBU = 100+ SRM = 6 ABV = 8%

Ingredients

- 2.25 lbs. (1 kg) organic Pilsner malt
- 1.75 lbs. (0.8 kg) organic flaked rye
- 2 lbs. (0.91 kg) Briess organic
light dried malt extract
- 5 lbs. (2.3 kg) Briess organic light
liquid malt extract (late addition)
- 64 AAU Warrior® hops (75 min.)
(4 oz./113 g at 16% alpha acids)
- 56 AAU Magnum hops (40 min.)
(4 oz./113 g at 14% alpha acids)
- 48 AAU Columbus hops (10 min.)
(4 oz./113 g at 12% alpha acids)
- 5 oz. (0.14 kg) Warrior® hops (dry hop)
- 5 oz. (0.14 kg) Amarillo® hops (dry hop)
- Wyeast 1728 (Scottish Ale) or White Labs
WLP028 (Edinburgh Scottish Ale) yeast
(2 qt./2 L yeast starter)
- ¾ cup corn sugar (if priming)

Step by Step

Steep grains for 45 minutes at 155 °F (68 °C) in 5 qts. (4.7 L) of water. Add dried malt extract to wort and bring wort volume to 6.5 gallons (25 L) and boil for 90 minutes. (You need to perform a full wort boil to get the right bitterness and character from the hops.) Add hops as per ingredient list and liquid malt extract for final 15 minutes of boil. Ferment at 68 °F (20 °C). Dry hop for five to seven days and then bottle or keg.

Hill Farmstead Brewery's Abner clone

(5.5 gallons/21 L, all-grain)
OG = 1.075 FG = 1.014
IBU = 100+ SRM = 6 ABV = 8.5%

Ingredients

- 15 lbs. (6.8 kg) 2-row pale malt
- 0.75 lbs. (0.34 kg) caramalt (12 °L)
- 1 lb. (0.45 kg) corn sugar (10 min.)
- 15.5 AAU Warrior® hops (60 min.)
(1 oz./28 g at 15.5% alpha acids)
- 10.5 AAU Columbus hops (30 min.)
(0.75 oz./21 g at 14% alpha acids)
- 13 AAU Simcoe® hops (0 min.)
(1 oz./28 g at 13% alpha acids)
- 10 AAU Centennial hops (0 min.)
(1 oz./28 g at 10% alpha acids)
- 6.5 AAU Chinook hops (0 min.)
(0.5 oz./14 g at 13% alpha acids)
- 7 AAU Columbus hops (0 min.)
(0.5 oz./14 g at 14% alpha acids)
- 3 oz. (84 g) Centennial hops (dry hop)
- 2 oz. (56 g) Simcoe® hops (dry hop)
- 1 Tbsp. Polyclar
- Wyeast 1028 (London Ale), White
Labs WLP013 (London Ale) or
Lallemand Nottingham yeast
- ¾ cup corn sugar (if priming)

Step by Step

This is a single infusion mash. Achieve a target mash temperature of 149 °F (65 °C). Hold for 45 minutes, then proceed to mash out or begin lauter phase. Collect about 7 gallons (27 L) in your kettle. The goal is to get 5.5 gallons (21 L) into your fermenter. Boil for 75 minutes, adding the hops as instructed. After boil is complete, begin a whirlpool in the kettle and let the knockout hops rest in the hot wort for at least 30 minutes before chilling. Target pitching rate at 1 million cells/milliliter/degrees Plato (~2 L starter). Ferment at 68 °F (20 °C) for one week. Add a fining agent to clear yeast from beer. Add the dry hops and let the beer sit on the dry hops for an additional seven to ten days. You are now ready to bottle or keg.

HILL FARMSTEAD BREWERY'S ABNER CLONE

(5.5 gallons/21 L, extract with grains)
OG = 1.075 FG = 1.014
IBU = 100+ SRM = 7 ABV = 8.5%

Ingredients

- 9.9 lbs. (4.5 kg) light liquid extract
- 0.5 lbs. (0.23 kg) extra light dried
malt extract
- 0.75 lbs. (0.34 kg) caramalt (12 °L)



- 1 lb. (0.45 kg) corn sugar (10 min.)
- 15.5 AAU Warrior® hops (60 min.)
(1 oz./28 g at 15.5% alpha acids)
- 10.5 AAU Columbus hops (30 min.)
(0.75 oz./21 g at 14% alpha acids)
- 13 AAU Simcoe® hops (0 min.)
(1 oz./28 g at 13% alpha acids)
- 10 AAU Centennial hops (0 min.)
(1 oz./28 g at 10% alpha acids)
- 6.5 AAU Chinook hops (0 min.)
(0.5 oz./14 g at 13% alpha acids)
- 7 AAU Columbus hops (0 min.)
(0.5 oz./14 g at 14% alpha acids)
- 3 oz. (84 g) Centennial hops (dry hop)
- 2 oz. (56 g) Simcoe® hops (dry hop)
- 1 Tbsp. Polyclar
- Wyeast 1028 (London Ale) or White Labs WLP013 (London Ale) or Lallemend Nottingham yeast
- ¾ cup corn sugar (if priming)

Step by Step

Steep the crushed caramalt in 2 qts. (1.9 L) water at 155 °F (68 °C) for 20 minutes. Top off kettle to 7 gallons (27 L). Off heat, add the liquid and dried malt extract and bring to a boil. Boil for 75 minutes, adding the hops and corn sugar as instructed in the ingredients list. After boil is complete, begin a whirlpool in the kettle and let the knock-out hops rest in the hot wort for at least 30 minutes before chilling. Chill the wort rapidly to 68 °F (20 °C). Target pitching rate at 1 million cells/milliliter/degrees Plato (~2 L starter). Ferment at 68 °F (20 °C) for one week. Add a fining agent to clear any yeast from beer. Add the dry hops and let the beer sit on the dry hops for an additional seven to ten days. You are now ready to bottle or keg.

Tips for Success:

Although the standard batch size for *Brew Your Own* recipes is 5 gallons (19 L), the goal with this recipe is to get at least 5.5 gallons (21 L) into your fermenter to compensate for the loss of wort that will occur during dry hopping. Make sure your primary fermenter has enough headspace to accommodate that much wort plus a large krausen. Brewing with whole-flower or fresh hops (if you choose to use them for this recipe) can leave a lot of hop material behind, which in addition to reducing your final volume as mentioned earlier, can also clog up your equipment. Add your boil hops using a muslin brewing bag or a "hop spider" to make things easier. To build your own hop spider, visit: <http://byo.com/story2427>.

The mouthfeel of this beer is incredible, which may mean that chlorides are one key to Shaun Hill's success at Hill Farmstead Brewery (one key of many). To try and duplicate this in your homebrewery, start off with

soft water and make sure the chloride level in your brewing water is at least 50 ppm to help boost the mouthfeel. Try experimenting with different chloride levels in test batches until you get the one you like. Also, don't forget sulfate levels. A good starting point is 100 ppm with the addition of gypsum salt. To tweak your brewing water, download *Brew Your Own's* brewing water spreadsheet, written by Vermont Pub & Brewery's Greg Noonan: <http://byo.com/resources/brewwater>. No matter what type of brewer you are, carbon filtering your water or treating it overnight with Campden tablets is recommended, especially if your water comes from a town or city source that is chlorinated (as opposed to well or spring water). Adding one Campden tablet in 20 gallons (76 L) of water (left overnight) will rid your water of chlorine compounds that can lead to off-flavors in your beer.

Another huge factor in Abner, as with all pale, hoppy beers, is minimizing oxygen uptake after fermentation. When transferring your finished beer, make sure you are either flushing the receiving vessel with CO₂ or using a closed transfer system. This is because hop compounds are especially sensitive to oxidation and their flavors diminish quickly when exposed to oxygen.

Hop Hammer

(5 gallons/19 L, all-grain)
OG = 1.079 FG = 1.013
IBU = 100+ SRM = 7 ABV = 9.2%

Ingredients

- 13.5 lbs. (6.12 kg) American 2-row malt (2 °L)
- 0.5 lb. (0.23 kg) wheat malt (2 °L)
- 0.5 lb. (0.23 kg) crystal malt (40 °L)
- 1.25 lb. (0.56 kg) corn sugar (0 °L) (15 min.)
- 26.3 AAU Warrior® hop pellets (90 min.)
(1.75 oz./50 g at 15% alpha acids)
- 22.8 AAU Chinook hop pellets (90 min.)
(1.75 oz./50 g at 13% alpha acids)
- 12 AAU Simcoe® hop pellets (45 min.)
(1 oz./28 g at 12% alpha acids)
- 14 AAU Columbus hop pellets (30 min.)
(1 oz./28 g at 14% alpha acids)
- 15.75 AAU Centennial hop pellets (0 min.)
(1.75 oz./50 g at 9% alpha acids)
- 12 AAU Simcoe® hop pellets (0 min.)
(1 oz./28 g at 12% alpha acids)
- 2.5 oz. (71 g) Columbus hop pellets (dry hop)
- 1.5 oz. (43 g) Centennial hop pellets (dry hop)
- 1.5 oz. (43 g) Simcoe® hop pellets (dry hop)
- White Labs WLP001 (California Ale), Wyeast 1056 (American Ale), or Safale US-05 yeast
- ¾ cup corn sugar (if priming)

Step by Step

Mill the grains and dough-in targeting a mash 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 150 °F (66 °C). Hold the mash at 150 °F (66 °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 6.5 gallons (24.6 L) and the gravity is 1.061.

The total wort boil time is 90 minutes. Add the bittering hops right at the beginning. Add the other hop additions according to the schedule and the corn sugar as well as Irish moss or other kettle finings with 15 minutes left in the boil. Chill the wort rapidly to 67 °F (19 °C), let the break material settle, rack to the fermenter, pitch the yeast and aerate thoroughly.

Use 15 grams of properly rehydrated dry yeast, 3 liquid yeast packages, or make an appropriate starter. Ferment at 67 °F (19 °C), slowly raising the temperature to 70 °F (21 °C) as the fermentation begins to slow. With healthy yeast, fermentation should be complete in a week, but don't rush it.

As soon as the bulk of the yeast begins to drop, transfer the beer to a second fermenter and add the dry hops. The pellets should break up and eventually settle to the bottom of the fermenter. This might take a few days, so don't panic. Let the beer sit on the hops for another seven days, approximately seven to ten days total.

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.

HOP HAMMER

(5 gallons/19 L, extract with grains)
OG = 1.079 FG = 1.013
IBU = 100+ SRM = 7 ABV = 9.2%

Ingredients

- 8 lbs. (3.63 kg) golden light liquid malt extract (2 °L)
- 0.75 lb. (0.34 kg) wheat dried malt extract (4 °L)
- 0.5 lb. (0.23 kg) crystal malt (40 °L)
- 1.5 lbs. (0.68 kg) corn sugar (0 °L) (15 min.)
- 26.3 AAU Warrior® hop pellets (90 min.)
(1.75 oz./50 g at 15% alpha acids)
- 22.8 AAU Chinook hop pellets (90 min.)
(1.75 oz./50 g at 13% alpha acids)
- 12 AAU Simcoe® hop pellets (45 min.)
(1 oz./28 g at 12% alpha acids)
- 14 AAU Columbus hop pellets (30 min.)
(1 oz./28 g at 14% alpha acids)



- 15.8 AAU Centennial hop pellets (0 min.)
(1.75 oz./50 g at 9% alpha acids)
- 12 AAU Simcoe® hop pellets (0 min.)
(1 oz./28 g at 12% alpha acids)
- 2.5 oz. (71 g) Columbus hop pellets (dry hop)
- 1.5 oz. (43 g) Centennial hop pellets
(dry hop)
- 1.5 oz. (43 g) Simcoe® hop pellets (dry hop)
- White Labs WLP001 (California Ale),
Wyeast 1056 (American Ale), or
Safale US-05 yeast
- ¾ cup corn sugar (if priming)

Step by Step

Mill or coarsely crack the specialty malts. Mix them well and place loosely in a grain bag. Steep the bag in 2 qts. (~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 for a few minutes while you add the malt extract. Do not squeeze the bags. Add enough water to the steeping liquor and malt extract to make a pre-boil volume around 6.5 gallons (24.6 L) and the gravity is 1.061. Stir thoroughly to help dissolve the extract and bring to a boil.

Once the wort is boiling, add the bittering hops. The total wort boil time is 90 minutes after adding the bittering hops. Add the other hop additions according to the schedule and the corn sugar as well as Irish moss or other kettle finings with 15 minutes left in the boil. Chill the wort rapidly to 67 °F (19 °C), let the break material settle, rack to the fermenter, pitch the yeast and aerate thoroughly.

Use 15 grams of properly rehydrated dry yeast, 3 liquid yeast packages, or make an appropriate yeast. Ferment at 67 °F (19 °C), slowly raising the temperature to 70 °F (21 °C) as the fermentation begins to slow. Follow the remainder of the all-grain recipe instructions.

Imperial Stormtrooper IPA

(5 gallons/19 L, all-grain)
OG = 1.090 FG = 1.024
IBU = 100 SRM = 16 ABV = 9.4%

Ingredients

- 7 lbs. (3.2 kg) Maris Otter pale ale malt
- 7 lbs. (3.2 kg) American 2-row pale malt
- 2 lbs. (0.91 kg) home-roasted amber malt
- 1.5 lbs. (0.68 kg) light Munich malt (6 °L)
- 0.5 lb. (0.23 kg) white wheat malt
- 0.25 lb. (113 g) Special B malt
- 0.25 lb. (113 g) Carastan malt
- 0.25 lb. (113 g) Carapils® malt
- 7.2 AAU Chinook hops (first wort hop)
(0.6 oz./17 g at 12% alpha acids)

- 6 AAU Nugget hops (first wort hop)
(0.5 oz./14 g at 12% alpha acids)
- 10.4 AAU Columbus hops (30 min.)
(0.8 oz./23 g at 13% alpha acids)
- 4.5 AAU Centennial hops (20 min.)
(0.5 oz./14 g at 9% alpha acids)
- 3 AAU Nugget hops (20 min.)
(0.25 oz./7 g at 12% alpha acids)
- 10 AAU East Kent Goldings hops (15 min.)
(2 oz./57 g at 5% alpha acids)
- 0.68 AAU English Fuggle hops (15 min.)
(0.15 oz./4.3 g at 4.5% alpha acids)
- 0.25 oz. Nugget hops (10 min.)
(0.25 oz./7 g at 12% alpha acids)
- 1 oz. Centennial hops (dry hop at 7 days)
- 1 oz. Centennial hops (dry hop at 17 days)
- ½ tsp. gypsum
- ½ tsp. calcium chloride
- Wyeast 1968 (London ESB Ale) or
White Labs WLP002 (English Ale) yeast
- 2 oz. (56 g) dried malt extract (if priming)

Step by Step

Start by toasting 2 lbs. (0.91 kg) of uncrushed American pale malt. Pre-heat your oven to 350 °F (177 °C). While the oven is heating up, soak the grains in water for about 15 minutes. Lay the grains out on a baking sheet and bake for about 30 minutes or until smelling nutty. If you do not want to bake your own malt, you can substitute in Briess Victory® malt or a Belgian aromatic malt.

This is a single infusion mash for 60 minutes at 153 °F (67 °C) with 6 gallons (23 L) of water treated with ½ teaspoon of each gypsum and calcium chloride. Sparge with enough water to collect approximately 6.5 gallons (24.6 L) of wort in your brewpot. Add the first wort hops during the sparge phase. Boil for 60 minutes adding the hops according to the schedule. Ferment at 68 °F (20 °C), adding dry hops after seven days and again at 17 days. Keg your beer at 31 days or bottle and prime with 2 oz. (56 g) dried malt extract.

Partial mash option:

Replace all the Maris Otter pale ale malt, American 2-row pale malt and Carapils® malt with 5 lbs. (2.27 kg) Maris Otter liquid malt extract and 3.75 lbs. (1.7 kg) light dried malt extract. Toast the 2-row pale malt using the instructions from the all-grain version. Mash the remaining grains in 1.75 gallons (6.6 L) water at 153 °F (67 °C) for 60 minutes. Wash the grains with 2 gallons (7.6 L) hot water. Add in the dried and liquid malt extract and top off the brewpot to 6.5 gallons (24.6 L). Stir to make sure all the malt extract is dissolved then add the first wort hops and bring to a boil. Follow the remaining instructions from the all-grain recipe.

Lawson's Finest Liquids' Double Sunshine IPA clone

(5 gallons/19 L, all-grain)
OG = 1.074 FG = 1.013
IBU = 100+ SRM = 6 ABV = 8%

Ingredients

- 9.5 lbs. (4.3 kg) 2-row pale ale malt
- 2.5 lbs. (1.1 kg) Vienna-style malt
- 1 lb. (0.45 kg) flaked oats
- 12 oz. (0.34 kg) dextrin malt (7–9 °L)
- 6 oz. (0.17 kg) Caramunich®-type malt
(20–30 °L)
- 1 lb. (0.45 kg) corn sugar (10 min.)
- 10.5 AAU Columbus hops (60 min.)
(0.75 oz./21 g at 14% alpha acids)
- 12.5 AAU Citra® hops (20 min.)
(1 oz./21 g at 12.5% alpha acids)
- 37.5 AAU Citra® hops (5 min.)
(3 oz./84 g at 12.5% alpha acids)
- 37.5 AAU Citra® hops (0 min.)
(3 oz./84 g at 12.5% alpha acids)
- 3 oz. (84 g) Citra® hops (dry hop)
- Safale US-05 yeast, Lallemand BRY-097,
Wyeast 1056 (American Ale), or
White Labs WLP001 (California Ale).
- ¾ cup corn sugar (if priming)

Step by Step

This is a single infusion mash. Achieve a target mash temperature of 152 °F (67 °C). Hold for 45 minutes, then raise mash to mash out temperature and begin lautering phase. Collect enough wort to boil 6.5 gallons (25 L). Boil for 60 minutes, adding the hops as instructed in the ingredients list and the corn sugar with 10 minutes left in the boil. After boil is complete, begin a whirlpool in the kettle and let the hops rest in the hot wort for at least 30 minutes before chilling.

Chill the wort rapidly to 68 °F (20 °C). Ferment at 68 °F (18 °C) for one week. Cool to 55 °F (13 °C) to settle yeast. Dump the yeast from the bottom of fermenter, or rack to a clean, sanitized vessel. Add the dry hops and let the beer sit on them for an additional four to seven days at 55–57 °F (13–14 °C). Rack into a keg, or into bottles with priming sugar.

LAWSON'S FINEST LIQUIDS' DOUBLE SUNSHINE CLONE

(5 gallons/19 L, partial mash)
OG = 1.074 FG = 1.013
IBU = 100+ SRM = 6 ABV = 8%

Ingredients

- 6.6 lbs. (3 kg) light liquid malt extract
- 2.5 lbs. (1.1 kg) Vienna-style malt
- 1 lb. (0.45 kg) flaked oats



6 oz. (0.17 kg) Caramunich®-type malt (20-30 °L)
 1.5 lbs. (0.68 kg) corn sugar (10 min.)
 10.5 AAU Columbus hops (60 min.) (0.75 oz./21 g at 14% alpha acids)
 12.5 AAU Citra® hops (20 min.) (1 oz./21 g at 12.5% alpha acids)
 37.5 AAU Citra® hops (5 min.) (3 oz./84 g at 12.5% alpha acids)
 37.5 AAU Citra® hops (0 min.) (3 oz./84 g at 12.5% alpha acids)
 3 oz. (84 g) Citra® hops (dry hop)
 Safale US-05 yeast, Lallemand BRY-097, Wyeast 1056 (American Ale), or White Labs WLP001 (California Ale)
 ⅔ cup corn sugar (if priming)

Step by Step

Mix the crushed Vienna, flaked oats and Caramunich®-type malts into 2 gallons (7.6 L) water to achieve a mash temperature of 152 °F (67 °C) then hold at this temperature for 45 minutes. Rinse the grains with 2.5 qts. (2.4 L) hot water, add liquid extract and bring to a boil. Top off kettle to 6.5 gallons (25 L). Boil for 60 minutes, adding the hops as instructed and the corn sugar with 10 minutes left in the boil. After boil is complete, begin a whirlpool in the kettle and let the hops rest in the hot wort for at least 30 minutes before chilling. Chill the wort rapidly to 68 °F (20 °C). Ferment at 68 °F (20 °C) for one week. Cool to 55 °F (13 °C) to settle yeast. Dump the yeast from the bottom of fermenter, or rack to a clean, sanitized vessel. Add the dry hops and let the beer sit on for an additional four to seven days at 55–57 °F (13–14 °C). Rack into a keg, or into bottles with priming sugar.

Tips for Success:

Having a strong and healthy fermentation as well as following good practices during downstream beer handling are key to trying to replicate a beer like Double Sunshine IPA. Be sure to run a clean fermentation and you also need to make sure oxygen has no chance for uptake post fermentation.

Sean Lawson advises homebrewers to, “determine if you have hard or soft water. I recommend John Palmer’s *How to Brew* for reference. If you have hard water, then cut by at least half with distilled or reverse osmosis (RO). With soft water, a basic guideline for IPAs would be to add equal parts gypsum and calcium chloride to bring total calcium content over 50 ppm.” If you homebrew with a water source that is chlorinated, one Campden tablet in 20 gallons (76 L) of water (left overnight) will rid your water of chlorine compounds that can lead to off-flavors in your beer. For more information about brewing water treatments, visit <http://byo.com/story1547>. To make adjust-

ments to your brewing water, download *Brew Your Own’s* brewing water spreadsheet: <http://byo.com/resources/brewwater>.

For all-grain brewers, a handful of rice hulls in the mash may help you if your brew setup is prone to a stuck mash. Rice hulls are a great tool when using moderate to high percentages of gummy grains such as flaked oats.

Left Hand Brewing Co.’s Twin Sisters clone

(5 gallons/19 L, all-grain)
 OG = 1.084 FG = 1.016
 IBU = 80 SRM = 10 ABV = 9.6%

Ingredients

15 lbs. (6.8 kg) Castle pale ale malt
 1.5 lbs. (0.68 kg) rye malt
 0.5 lb. (0.23 kg) flaked barley
 0.5 lb. (0.23 kg) crystal rye malt (75 °L)
 13.8 AAU Tomahawk® hops (60 min.) (0.92 oz./26 g at 15% alpha acids)
 7.5 AAU Glacier hops (45 min.) (0.63 oz./18 g at 12% alpha acids)
 3.8 AAU Cascade hops (30 min.) (0.75 oz./21 g at 5% alpha acids)
 11.3 AAU Glacier hops (5 min.) (0.94 oz./27 g at 12% alpha acids)
 3 AAU Willamette hops (5 min.) (0.75 oz./21 g at 4% alpha acids)
 1.25 oz. (35 g) Cascade hops (dry hop)
 Wyeast 1272 (American Ale II) or White Labs WLP005 (California Ale V) yeast (3 qt./~3 L yeast starter)
 ⅔ cups corn sugar (if priming)

Step by Step

Mash at 152 °F (67 °C) for 45 minutes. Boil for 90 minutes, adding the hops as per the ingredient schedule. After the boil, cool and ferment at 68 °F (20 °C). Dry hop for five days just before bottling or kegging.

LEFT HAND BREWING CO.’S TWIN SISTERS CLONE

(5 gallons/19 L, extract with grains)
 OG = 1.084 FG = 1.016
 IBU = 80 SRM = 10 ABV = 9.6%

Ingredients

2 lbs. (0.91 kg) Muntons light dried malt extract
 6.6 lbs. (3.0 kg) Muntons light liquid malt extract (late addition)
 1.75 lbs. (0.8 kg) Castle pale ale malt
 1.5 lbs. (0.68 kg) rye malt
 0.5 lb. (0.23 kg) flaked barley
 0.5 lb. (0.23 kg) crystal rye malt (75 °L)
 13.8 AAU Tomahawk® hops (60 min.) (0.92 oz./26 g at 15% alpha acids)

7.5 AAU Glacier hops (45 min.) (0.63 oz./18 g at 12% alpha acids)
 3.8 AAU Cascade hops (30 min.) (0.75 oz./21 g at 5% alpha acids)
 11.3 AAU Glacier hops (5 min.) (0.94 oz./27 g at 12% alpha acids)
 3 AAU Willamette hops (5 min.) (0.75 oz./21 g at 4% alpha acids)
 1.25 oz. (35 g) Cascade hops (dry hop)
 Wyeast 1272 (American Ale II) or White Labs WLP005 (California Ale V) yeast (3 qt./~3 L yeast starter)
 ⅔ cups corn sugar (if priming)

Step by Step

In your brewpot, heat 1.5 gallons (5.7 L) of water to 163 °F (73 °C). Add crushed grains to a nylon steeping bag and steep for 45 minutes at 152 °F (67 °C). While grains are steeping, heat 1.5 quarts (1.4 L) of rinse (sparge) water to 170 °F (77 °C). After the grains are done steeping, put a colander over your brewpot and put the grain bag in it. Rinse grains with 170 °F (77 °C) sparge water. Add water to brewpot to make 4 gallons (15 L). (If you boil a smaller volume, you will not be able to extract the proper amount of bitterness from the hops.)

Bring “grain tea” and water to a boil and add dried malt extract. Boil for 60 minutes, adding hops at times indicated in the ingredient list. Keep a smaller pot of boiling water handy, and keep the boil volume topped up to 4 gallons (15 L). Stir in the liquid malt extract at the end of the boil and let it steep for 15 minutes before cooling. Cool wort and transfer to fermenter. Top up to 5 gallons (19 L) with cool water and aerate thoroughly. Pitch yeast and ferment at 68 °F (20 °C).

Lompoc Brewing Co.’s C-Sons Greetings Ale clone

(5 gallons/19 L, all-grain)
 OG = 1.078 FG = 1.016
 IBU = 96 SRM = 13 ABV = 8.6%

Ingredients

14.25 lbs. (6.5 kg) 2-row pale malt
 1.2 lbs. (0.54 kg) crystal malt (75 °L)
 1.2 lbs. (0.54 kg) flaked barley
 4.2 AAU Centennial hop pellets (first wort hop) (0.4 oz./11 g at 10.5% alpha acids)
 3.75 AAU Sterling hop pellets (60 min.) (0.5 oz./14 g at 7.5% alpha acids)
 9 AAU Nugget hop pellets (60 min.) (0.7 oz./20 g at 12.8% alpha acids)
 6.5 AAU Chinook hop pellets (40 min.) (0.5 oz./14 g at 13% alpha acids)
 1.75 AAU Crystal hop pellets (40 min.)



- (0.5 oz./14 g at 3.5% alpha acids)
- 5.75 AAU Cascade hop pellets (20 min.)
(1 oz./28 g at 5.75% alpha acids)
- 10.5 AAU Centennial hop pellets (0 min.)
(1 oz./28 g at 10.5% alpha acids)
- 1 oz. (28 g) Cascade hop pellets
(dry hop)
- 1 oz. (28 g) Centennial hop pellets
(dry hop)
- 1 oz. (28 g) Crystal hop pellets
(dry hop)
- 0.5 oz. (14 g) Chinook hop pellets
(dry hop)
- ½ tsp. Irish moss (30 min.)
- ½ tsp. yeast nutrient (15 min.)
- White Labs WLP001 (California Ale) or
Wyeast 1056 (American Ale) or
Safale US-05 yeast
- ¾ cup of corn sugar (if priming)

Step by Step

This is a single step infusion mash. Mix all of the crushed grains with 5.5 gallons (21 L) of 172 °F (78 °C) water to stabilize at 154 °F (68 °C) for 60 minutes. Slowly sparge with 175 °F (79 °C) water and add the first wort hops to the kettle. Collect approximately 6 gallons (23 L) of wort runoff to boil for 60 minutes.

While boiling, add the hops, Irish moss and yeast nutrient as per the schedule. During the boil, use this time to thoroughly sanitize your fermentation equipment.

Cool the wort to 75 °F (24 °C). Pitch your yeast and aerate the wort heavily. Allow the beer to cool to 68 °F (20 °C). Hold at that temperature until fermentation is complete. Gently transfer to a carboy, avoiding any splashing to prevent aerating the beer. Add the dry hops for three days and then remove or rack off the dry hops. Allow the beer to condition for an additional week and then add priming sugar and bottle or keg. Allow the beer to carbonate and age for three more weeks and enjoy your C-Sons Greetings Ale clone.

LOMPOC BREWING CO.'S C-SONS GREETINGS ALE CLONE

(5 gallons/19 L, extract with grains)
OG = 1.078 FG = 1.016
IBU = 96 SRM = 13 ABV = 8.6%

Ingredients

- 6.6 lbs. (3 kg) Muntons light, unhopped,
liquid malt extract
- 1.3 lbs. (0.59 kg) light dried malt extract
- 2 lbs. (0.91 kg) 2-row pale malt
- 1.2 lbs. (0.54 kg) crystal malt (75 °L)
- 1.2 lbs. (0.54 kg) flaked barley
- 5.25 AAU Centennial hop pellets
(first wort hop) (0.5 oz./14 g at
10.5% alpha acids)

- 4.5 AAU Sterling hop pellets (60 min.)
(0.6 oz./17 g at 7.5% alpha acids)
- 10.2 AAU Nugget hop pellets (60 min.)
(0.8 oz./23 g at 12.8% alpha acids)
- 6.5 AAU Chinook hop pellets (40 min.)
(0.5 oz./14 g at 13% alpha acids)
- 1.75 AAU Crystal hop pellets (40 min.)
(0.5 oz./14 g at 3.5% alpha acids)
- 5.75 AAU Cascade hop pellets (20 min.)
(1 oz./28 g at 5.75% alpha acids)
- 10.5 AAU Centennial hop pellets (0 min.)
(1 oz./28 g at 10.5% alpha acids)
- 1 oz. (28 g) Cascade hop pellets (dry hop)
- 1 oz. (28 g) Centennial hop pellets (dry hop)
- 1 oz. (28 g) Crystal hop pellets (dry hop)
- 0.5 oz. (14 g) Chinook hop pellets (dry hop)
- ½ tsp. Irish moss (30 min.)
- ½ tsp. yeast nutrient (15 min.)
- White Labs WLP001 (California Ale),
Wyeast 1056 (American Ale) or
Safale US-05 yeast
- ¾ cup of corn sugar (if priming)

Step by Step

Steep the milled grain in 2.5 gallons (9.5 L) of water at 154 °F (68 °C) for 30 minutes. Remove grains from the wort and rinse with 2 quarts (2 L) of hot water. Add the malt extracts and first wort hops to the wort. Bring to a boil and boil 60 minutes, adding the Sterling and Nugget hops once a boil is achieved. While boiling, add the hops, Irish moss and yeast nutrients as per the schedule. During the boil, use this time to thoroughly sanitize your fermentation equipment. When the boil is done, add the wort to 2 gallons (8 L) of cold water in a sanitized fermenter and top off with cold water up to 5 gallons (19 L).

Cool the wort to 75 °F (24 °C). Pitch your yeast and aerate the wort heavily. Allow the beer to cool to 68 °F (20 °C). Hold at that temperature until fermentation is complete. Gently transfer to a carboy, avoiding any splashing to prevent aerating the beer. Add the dry hops for three days and then remove or rack off the dry hops. Allow the beer to condition for an additional week and then add priming sugar and bottle or keg. Allow the beer to carbonate and age for three more weeks and enjoy your C-Sons Greetings Ale clone.

Matt Gauzza's Imperial IPA

(5 gallons/19 L, all-grain)
OG = 1.084 FG = 1.020
IBU = 91 SRM = 9 ABV = 9.1%

Ingredients

- 11 lbs. (5 kg) North American 2-row
pale malt

- 4 lbs. (1.8 kg) Munich malt (7 °L)
- 2 lbs. (0.91 kg) Carapils®/dextrine
malt (2 °L)
- 1 lb. (0.45 kg) Vienna malt (3 °L)
- 15 AAU Warrior® hops (first wort hop)
(1 oz./28 g at 15% alpha acids)
- 6.5 AAU Simcoe® hops (60 min.)
(0.5 oz./14 g at 13% alpha acids)
- 8.5 AAU Amarillo® hops (15 min.)
(1 oz./28 g at 8.5% alpha acids)
- 6.5 AAU Simcoe® hops (15 min.)
(0.5 oz./14 g at 13% alpha acids)
- 8.5 AAU Amarillo® hops (1 min.)
(1 oz./28 g at 8.5% alpha acids)
- 13 AAU Simcoe® hops (1 min.)
(1 oz./28 g at 13% alpha acids)
- 1 oz. (28 g) Simcoe® hops (dry hop)
- 1 oz. (28 g) Amarillo® hops (dry hop)
- 1 tsp. Irish moss (15 min.)
- 1 package each Safale S-04 and
Safale US-05 yeast
- ¾ cups corn sugar (if priming)

Step by Step

Mash in for 60 minutes with 5.5 gallons (21 L) of water at 164 °F (73 °C) to stabilize the mash temperature at 152 °F (67 °C). At mash out, add 3 gallons (11 L) of water at 200 °F (93 °C) for 10 minutes. Fly sparge 2 gallons (7.6 L) of water heated to 168 °F (75 °C) adding the first wort hops to the kettle during the sparge. Boil for 60 minutes, adding the remaining hops and Irish moss according to the ingredients list. After the boil, rapidly chill the wort to yeast-pitching temperatures and pitch the yeast. Ferment at 68 °F (20 °C). When the primary fermentation is complete, dry hop the beer for seven days.

Partial mash option:

Reduce the 2-row pale malt down to 1 lb. (0.45 kg), the Carapils®/dextrine malt to 1 lb. (0.45 kg) and remove all the Munich malt. Replace with 3.3 lbs. (1.5 kg) Munich liquid malt extract and 5.2 lbs (2.4 kg) extra light dried malt extract. Mash the crushed grains in 1 gallon (3.8 L) water at 152 °F (67 °C). Hold for 60 minutes then wash the grains with 1 gallon (3.8 L) hot water. Add water to make 5 gallons (19 L). Add the first wort hops and all the malt extract. Boil for 60 minutes adding the remaining hops and Irish moss according to the ingredients list. Rapidly chill the wort to yeast pitching temperatures, top off the wort to 5 gallons and pitch the yeast. When the primary fermentation is complete, dry hop the beer for seven days.

Mike's McDole's IPA

(5 gallons/19 L, all-grain)



OG = 1.095 FG = 1.020
 IBU = ~100 SRM = 7 ABV = 10.7%

Ingredients

17 lbs. (7.7 kg) American 2-row pale malt (2 °L)
 1 lb. (0.45 kg) Briess Carapils® malt (2 °L)
 0.5 lb. (0.23 kg) corn sugar
 0.5 lb. (0.23 kg) crystal malt (40 °L)
 0.5 lb. (0.23 kg) wheat malt (2 °L)
 9.75 AAU Chinook hop pellets (mash hop) (0.75 oz./21 g at 13% alpha acids)
 23.4 AAU Warrior® hop pellets (90 min.) (1.5 oz./43 g at 15.6% alpha acids)
 13 AAU Chinook hop pellets (90 min.) (1 oz./28 g at 13% alpha acids)
 9 AAU Simcoe® hop pellets (45 min.) (0.75 oz./21 g at 12% alpha acids)
 11.3 AAU Columbus hop pellets (30 min.) (0.75 oz./21 g at 15% alpha acids)
 6.8 AAU Northern Brewer hop pellets (15 min.) (0.75 oz./21 g at 9% alpha acids)
 13.2 AAU Centennial hop pellets (1 min.) (1.25 oz./35 g at 10.5% alpha acids)
 12 AAU Simcoe® hop pellets (1 min.) (1 oz./28 g at 12% alpha acids)
 8.6 AAU Cascade hop pellets (0 min.) (1.5 oz./43 g at 5.75% alpha acids)
 2 oz. (57 g) Columbus hop pellets (dry hop)
 1.25 oz. (35 g) Centennial hop pellets (dry hop)
 1.25 oz. (35 g) Simcoe® hop pellets (dry hop)
 White Labs WLP001 (California Ale) or Wyeast 1056 (American Ale) yeast
 ¾ cup corn sugar (if priming)

Step by Step

Mash at 153 °F (67 °C) for 45 minutes or until conversion is complete with 1.3 quarts (1.2 L) of water per pound (0.45 kg) of grain. Raise the mash temperature to 165 °F (74 °C) and hold for 15 minutes. Sparge for 45 minutes with 170 °F (77 °C) collecting 6.5 gallons (24.6 L) of wort. Boil 90 minutes, adding hop additions per schedule. Chill the wort to 68 °F (20 °C) and rack to the fermenter. Pitch an appropriate size starter and aerate. Ferment at 68 °F (20 °C) until 90% complete. Then add the dry hops and slowly raise temperature about one degree per day to 72 °F (22 °C). After seven to ten days, rack the beer to a keg or bottling bucket. Carbonate to about 2.5 volumes.

Extract option:

Replace the pale malt with 9 lbs. (4.1 kg) light dried malt extract. Steep the crushed grains in 3 qts. (2.8 L) of water at 153 °F (67 °C) for 45 minutes. Combine the "grain tea," dried malt extract and water to make 6.5 gallons (25 L) of wort. (You must do a full-wort boil to get the proper hop utilization). Boil 90 minutes, adding hops at times indicated in the all-grain recipe. Chill to

68 °F (20 °C) and transfer to the fermenter. Aerate well and pitch the yeast. Ferment at 68 °F (20 °C).

Pacific Coast Brewing Co.'s Megalodon Imperial IPA clone

(5 gallons/19 L extract with grains)
 OG = 1.090 FG = 1.023
 IBU = 100+ SRM = 8 ABV = 9.6%

Ingredients

10.6 lbs. (4.8 kg) light liquid malt extract
 11 oz. (0.30 kg) Gambrinus honey malt (22 °L)
 1.5 lbs. (0.68 kg) white cane sugar (15 min.)
 22.1 AAU Nugget hops (60 min.) (1.7 oz./48 g of 13% alpha acids)
 18.7 AAU Horizon hops (60 min.) (1.7 oz./48 g of 11% alpha acids)
 22.8 AAU Columbus hops (60 min.) (1.9 oz./54 g of 12% alpha acids)
 11.2 AAU Centennial hops (60 min.) (1.4 oz./40 g of 8% alpha acids)
 0.85 oz. (24 g) Horizon hops (dry hop)
 1.4 oz. (40 g) Columbus hops (dry hop)
 1.4 oz. (40 g) Centennial hops (dry hop)
 2 packets Danstar Nottingham dried yeast
 ¾ cup corn sugar (if priming)

Step by Step

Steep grains at 152 °F (67 °C) for 45 minutes. Boil roughly 6.3 gallons (24 L) of wort down to 5 gallons (19 L) over 60 minutes, making your hop additions as per the ingredient schedule. Add the cane sugar in the final 15 minutes of the boil. Cool the wort and ferment at 68 °F (20 °C).

All-grain option:

Replace all the liquid malt extract with 16 lbs. (7.3 kg) 2-row pale malt and reduce the cane sugar to 1 lb. (0.45 kg). Mash at 153 °F (67 °C) for 60 minutes. Boil roughly 6.3 gallons (24 L) of wort down to 5 gallons (19 L) over 60 minutes, making your hop additions as per the ingredient schedule. Add the cane sugar in the final 15 minutes of the boil. Cool the wort and ferment at 68 °F (20 °C).

Rogue Ale's Imperial IPA (I²PA) clone

(5 gallons/19 L, all-grain)
 OG = 1.083 FG = 1.016
 IBU = 95 SRM = 7 ABV = 9.5%

Ingredients

17 lbs. (7.7 kg) pale ale malt (3 °L)
 13.5 AAU Newport hops (60 min.) (1 oz./28 g at 13.5% alpha acids)
 15 AAU Bravo hops (30 min.) (1 oz./28 g at 15% alpha acids)
 6 AAU Saaz hops (15 min.) (2 oz./56 g at 3% alpha acids)
 2.5 oz. (71 g) Cascade hops (dry hop) ½ whirlfloc tablet (5 min.)
 Wyeast 1764 (Rogue Pacman), or White Labs WLP051 (California V) yeast
 ¾ cup corn sugar (if priming)

Step by Step

Mash at 154 °F (68 °C). Boil for 90 minutes, adding hops at the time indicated in the recipe and the whirlfloc with 5 minutes remaining in the boil. Once the boil is done, cool the wort and ferment at 68 °F (20 °C). Add the dry hops after primary fermentation is complete.

Extract only option:

Replace pale malt with 11.5 lbs. (5.2 kg) Maris Otter liquid malt extract. Add the liquid malt extract to 5 gallons (19 L) water off heat and stir until dissolved. Boil for 60 minutes adding the hops at times indicated and the whirlfloc tablet with five minutes remaining in the boil. Once the boil is done, cool the wort and ferment at 68 °F (20 °C) adding the dry hops after primary fermentation is complete.

Russian River Brewing Co.'s Pliny the Elder clone

(5 gallons/19 L, all-grain)
 OG = 1.074 FG = 1.014
 IBU = 100+ SRM = 6 ABV = 8.3%

Ingredients

12.8 lbs. (5.8 kg) 2-row pale malt
 0.28 lb. (0.13 kg) crystal malt (45 °L)
 0.86 lb. (0.39 kg) Carapils® malt
 1 lb. (0.45 kg) dextrose (corn sugar)
 42.9 AAU Warrior® hops (90 min.) (2.75 oz./78 g at 15.6% alpha acids)
 6.1 AAU Chinook hops (90 min.) (0.5 oz./14 g at 12.2% alpha acids)
 14.3 AAU Columbus hops (45 min.) (1 oz./28 g at 14.3% alpha acids)
 12 AAU Simcoe® hops (30 min.) (1 oz./28 g at 12% alpha acids)
 20.5 AAU Centennial hops (0 min.) (2.25 oz./64 g at 9.1% alpha acids)
 12 AAU Simcoe® hops (0 min.) (1 oz./28 g at 12% alpha acids)
 3.25 oz. (92 g) Columbus hops (dry hop)
 1.75 oz. (50 g) Centennial hops (dry hop)
 1.75 oz. (50 g) Simcoe® hops (dry hop)



1 tsp. Irish moss (15 min.)
 White Labs WLP001 (California Ale),
 Wyeast 1056 (American Ale) or
 Safale US-05 yeast
 ¾ cups corn sugar (if priming)

Step by Step

Achieve a mash temperature of 150–152 °F (66–67 °C). Boil 90 minutes, adding hops at the time indicated in recipe. Ferment at 68 °F (20 °C). Dry hop two weeks after primary fermentation slows.

RUSSIAN RIVER BREWING CO.'S PLINY THE ELDER CLONE

(5 gallons/19 L, extract with grains)
 OG = 1.074 FG = 1.014
 IBU = 100+ SRM = 6 ABV = 8.3%

Ingredients

6.15 lbs. (2.8 kg) dried malt extract
 1 lb. (0.45 kg) 2-row malt
 0.28 lb. (0.13 kg) crystal malt (45 °L)
 0.86 lb. (0.39 kg) Carapils® malt
 1 lb. (0.45 kg) dextrose (corn sugar)
 42.9 AAU Warrior® hops (90 min.)
 (2.75 oz./78 g at 15.6% alpha acids)
 6.1 AAU Chinook hops (90 min.)
 (0.5 oz./14 g at 12.2% alpha acids)
 14.3 AAU Columbus hops (45 min.)
 (1 oz./28 g at 14.3% alpha acids)
 12 AAU Simcoe® hops (30 min.)
 (1 oz./28 g at 12% alpha acids)
 20.5 AAU Centennial hops (0 min.)
 (2.25 oz./64 g at 9.1% alpha acids)
 12 AAU Simcoe® hops (0 min.)
 (1 oz./28 g at 12% alpha acids)
 3.25 oz. (92 g) Columbus hops (dry hop)
 1.75 oz. (50 g) Centennial hops (dry hop)
 1.75 oz. (50 g) Simcoe® hops (dry hop)
 1 tsp. Irish moss (15 min.)
 White Labs WLP001 (California Ale),
 Wyeast 1056 (American Ale) or
 Safale US-05 yeast
 ¾ cups corn sugar (if priming)

Step by Step

Steep crushed grains in 1 gallon (3.8 L) of water at 151 °F (66 °C) for 45 minutes. Boil 90 minutes, adding hops at the time indicated in recipe. After the boil, cool and ferment at 68 °F (20 °C). Dry hop two weeks after primary fermentation slows and then bottle or keg.

Sierra Nevada Brewing Co.'s Torpedo Extra IPA clone

(5 gallons/19 L, all-grain)
 OG = 1.070 FG = 1.018
 IBU = 70 SRM = 8 ABV = 7.2%

Ingredients

14 lbs. (6.4 kg) pale malt
 11 oz. (0.31 kg) caramel malt (60 °L)
 17 AAU Magnum leaf hops (60 min.)
 (1.2 oz./34 g at 14% alpha acids)
 14 AAU Magnum leaf hops (5 min.)
 (1 oz./28 g at 14% alpha acids)
 4.6 AAU Crystal leaf hops (5 min.)
 (1 oz./28 g at 4.6% alpha acids)
 0.67 oz. (19 g) Magnum leaf hops (dry hop)
 0.67 oz. (19 g) Crystal leaf hops (dry hop)
 0.67 oz. (19 g) Citra® leaf hops (dry hop)
 1 tsp. Irish moss (15 min.)
 Wyeast 1056 (American Ale),
 White Labs WLP001 (California Ale) or
 Safale US-05 yeast
 ¾ cup corn sugar (if priming)

Step by Step

Mash at 152 °F (67 °C). Boil for 90 minutes, adding hops at times indicated in the ingredient list. Ferment at 68 °F (20 °C). When fermentation slows, dry hop for 10 to 14 days or use a CO₂ flushed closed dry hop recirculation system for four to 24 hours to add hop character. Bottle or keg as normal.

SIERRA NEVADA BREWING CO.'S TORPEDO EXTRA IPA CLONE

(5 gallons/19 L, partial mash)
 OG = 1.070 FG = 1.018
 IBU = 70 SRM = 8 ABV = 7.2%

Ingredients

3 lbs. 5 oz. (1.5 kg) pale malt
 11 oz. (0.31 kg) caramel malt (60 °L)
 4 lbs. (1.8 kg) extra light dried malt extract
 2 lbs. 4 oz. (1 kg) light liquid malt extract (15 min.)
 17 AAU Magnum leaf hops (60 min.)
 (1.2 oz./34 g at 14% alpha acids)
 14 AAU Magnum leaf hops (5 min.)
 (1 oz./28 g at 14% alpha acids)
 4.6 AAU Crystal leaf hops (5 min.)
 (1 oz./28 g at 4.6% alpha acids)
 0.67 oz. (19 g) Magnum leaf hops (dry hop)
 0.67 oz. (19 g) Crystal leaf hops (dry hop)
 0.67 oz. (19 g) Citra® leaf hops (dry hop)
 1 tsp. Irish moss (15 min.)
 Wyeast 1056 (American Ale),
 White Labs WLP001 (California Ale) or
 Safale US-05 yeast
 ¾ cup corn sugar (if priming)

Step by Step

To get the proper amount of hop bitterness, you must be able to boil at least 4 gallons (15 L) of wort. Mash grains at 152 °F (67 °C) for 45 minutes. Collect wort and add water to make 4 gallons (15 L). Stir in dried malt extract and bring wort to a boil. Boil for 90 minutes, adding hops at times indicated. Add boiling water if wort volume drops

below 3.5 gallons (13 L). Add liquid malt extract for final 15 minutes of the boil. Top up to 5 gallons (19 L). Ferment at 68 °F (20 °C). When fermentation slows, dry hop for 10–14 days or use a CO₂ flushed closed dry hop recirculation system for four to 24 hours to add hop character. Bottle or keg as normal.

SIERRA NEVADA BREWING CO.'S TORPEDO EXTRA IPA CLONE

(5 gallons/19 L, extract with grains)
 OG = 1.070 FG = 1.018
 IBU = 70 SRM = 8 ABV = 7.2%

Ingredients

11 oz. (0.31 kg) caramel malt (60 °L)
 5 lbs. (2.3 kg) extra light dried malt extract
 3.3 lbs. (1.5 kg) light liquid malt extract (15 min.)
 17 AAU Magnum leaf hops (60 min.)
 (1.2 oz./34 g at 14% alpha acids)
 14 AAU Magnum leaf hops (5 min.)
 (1 oz./28 g at 14% alpha acids)
 4.6 AAU Crystal leaf hops (5 min.)
 (1 oz./28 g at 4.6% alpha acids)
 0.67 oz. (19 g) Magnum leaf hops (dry hop)
 0.67 oz. (19 g) Crystal leaf hops (dry hop)
 0.67 oz. (19 g) Citra® leaf hops (dry hop)
 1 tsp. Irish moss (15 min.)
 Wyeast 1056 (American Ale),
 White Labs WLP001 (California Ale) or
 Safale US-05 yeast
 ¾ cup corn sugar (if priming)

Step by Step

To get the proper amount of hop bitterness, you must be able to boil at least 4 gallons (15 L) of wort. Steep crushed grains in 3 qts. (~3 L) of water at 152 °F (67 °C) for 45 minutes. Add water to make 4 gallons (15 L), stir in dried malt extract and bring to a boil. Boil 90 minutes, adding hops at time indicated. Add boiling water if wort volume drops below 3.5 gallons (13 L). Add liquid malt extract for final 15 minutes of the boil. Cool wort and transfer to fermenter. Add cold water to make 5 gallons (19 L). Ferment at 68 °F (20 °C). Dry hop for 10–14 days or use a CO₂ flushed closed dry hop recirculation system for four to 24 hours. Bottle or keg as normal.

Stone Brewing Co.'s Ruination IPA clone

(5 gallons/19 L, all-grain)
 OG = 1.074 FG = 1.012
 IBU = 100+ SRM = 6 ABV = 8.5%

Ingredients

14.5 lbs. (6.6 kg) 2-row pale malt
 1 lb. (0.45 kg) Briess crystal malt (15 °L)



36 AAU Magnum hops (90 min.)
(2.25 oz./64 g at 16% alpha acids)
16 AAU Centennial hops (0 min.)
(1.5 oz./43 g at 10.5% alpha acids)
6.5 AAU Chinook hops (0 min.)
(0.5 oz./14 g at 13% alpha acids)
2 oz. (57 g) Centennial whole hops (dry hop)
1 tsp. Irish moss (15 min.)
White Labs WLP002 (English Ale) or
Wyeast 1968 (London ESB Ale) yeast
(2 qt./2 L yeast starter)
¾ cup corn sugar (for priming)

Step by Step

Mash your grains at 149 °F (65 °C) for 60 minutes. Collect enough wort to boil for 90 minutes and have a 5-gallon (19-L) yield. At the end of the boil, remove the wort from heat and add the flameout hop addition. Stir the wort to create a whirlpool then let settle for 15 minutes or more before chilling. Ferment at 68 °F (20 °C). After primary fermentation is complete, add Centennial hops and dry hop for three to five days. Add priming sugar and bottle, or keg.

STONE BREWING CO.'S RUINATION IPA CLONE

(5 gallons/19 L, extract with grains)
OG = 1.074 FG = 1.012
IBU = 100+ SRM = 6 ABV = 8.5%

Ingredients

7.75 lbs. (3.5 kg) light dried malt extract
1 lb. (0.45 kg) Briess crystal malt (15 °L)
36 AAU Magnum hops (60 min.)
(2.25 oz./64 g at 16% alpha acids)
16 AAU Centennial hops (0 min.)
(1.5 oz./43 g at 10.5% alpha acids)
6.5 AAU Chinook hops (0 min.)
(0.5 oz./14 g at 13% alpha acids)
2 oz. (57 g) Centennial whole hops (dry hop)
1 tsp. Irish moss (15 min.)
White Labs WLP002 (English Ale) or
Wyeast 1968 (London ESB Ale) yeast
(2 qt./2 L yeast starter)
¾ cup corn sugar (for priming)

Step by Step

Place the crushed grain in a muslin bag. Steep in 6 gallons (23 L) of water as the water warms to a boil. Remove grains from wort once the temperature reaches about 160 °F (71 °C). Remove your brewpot from the burner and add malt extract. Bring to a boil. Boil for 60 minutes, adding hops at the times indicated in the recipe list. Cool the wort, aerate and pitch yeast. Ferment at 68 °F (20 °C) and hold at this temperature until the yeast has finished fermentation. After primary fermentation is complete, add Centennial hops and dry hop for three to five days. Add priming sugar and bottle, or keg.

Surly Brewing Co.'s Furious IPA clone

(5 Gallons/ 19 L, all-grain)
OG = 1.060 FG = 1.014
IBU = 99 SRM = 15 ABV = 6.2%

Ingredients

8 lbs. (3.6 kg) North American 2-row pale malt
3 lbs. (1.4 kg) Hugh Baird or Simpson Golden Promise malt
10 oz. (0.28 kg) Belgian aromatic malt (25 °L)
12 oz. (0.34 kg) crystal malt (60 °L)
2 oz. (57 g) roast barley (480 °L)
3 AAU Ahtanum™ hop pellets (first wort hop) (0.5 oz./14 g at 6% alpha acids)
24 AAU Warrior® hop pellets (60 min.) (1.5 oz./43 g at 16% alpha acids)
9.6 AAU Warrior® hop pellets (2 min.) (0.6 oz./17 g at 16% alpha acids)
3 AAU Ahtanum™ hop pellets (2 min.) (0.5 oz./14 g at 6% alpha acids)
5 AAU Amarillo® hop pellets (2 min.) (0.5 oz./14 g at 10% alpha acids)
6.4 AAU Simcoe® hop pellets (2 min.) (0.5 oz./14 g at 12.8% alpha acids)
0.5 oz. (14 g) Ahtanum™ whole leaf hops (dry hop)
0.5 oz. (14 g) Amarillo® whole leaf hops (dry hop)
0.5 oz. (14 g) Simcoe® whole leaf hops (dry hop)
0.2 oz. (6 g) Warrior® whole leaf hops (dry hop)
½ tsp. Irish moss (30 min.)
½ tsp. yeast nutrient (15 min.)
Wyeast 1335 (British Ale II) or White Labs WLP007 (Dry English Ale) yeast
¾ cup of corn sugar (if priming)

Step by Step

Mix the crushed grains with 3.75 gallons (14 L) of 170 °F (77 °C) water to stabilize at 153 °F (67 °C) for 60 minutes. Sparge slowly with 175 °F (79 °C) water adding the first wort hops to the brewpot. Collect approximately 6 gallons (23 L) of wort runoff to boil for 60 minutes. After the boil is complete, give the wort a stir and let the wort settle for five minutes.

Cool the wort to 75 °F (24 °C). Pitch your yeast and aerate the wort heavily. Allow the beer to cool to 68 °F (20 °C). Hold at that temperature until fermentation is complete. Transfer to a carboy, avoiding any splashing to prevent aerating the beer, and add the dry hops. Allow the beer to condition for one week and then bottle or keg. Allow the beer to carbonate and age for about two weeks and enjoy your Furious IPA clone.

SURLY BREWING CO.'S FURIOUS IPA CLONE

(5 Gallons/19 L, partial mash)
OG = 1.060 FG = 1.014
IBU = 99 SRM = 15 ABV = 6.2%

Ingredients

6.6 lbs. (3 kg) Muntions light, unhopped liquid malt extract
1.5 lbs. (0.68 kg) Hugh Baird or Simpson Golden Promise malt
10 oz. (0.28 kg) Belgian aromatic malt (25 °L)
12 oz. (0.34 kg) crystal malt (60 °L)
2 oz. (57 g) roast barley (480 °L)
3 AAU Ahtanum™ hop pellets (first wort hop) (0.5 oz./14 g at 6% alpha acids)
24 AAU Warrior® hop pellets (60 min.) (1.5 oz./43 g at 16% alpha acids)
9.6 AAU Warrior® hop pellets (2 min.) (0.6 oz./17 g at 16% alpha acids)
3 AAU Ahtanum™ hop pellets (2 min.) (0.5 oz./14 g at 6% alpha acids)
5 AAU Amarillo® hop pellets (2 min.) (0.5 oz./14 g at 10% alpha acids)
6.4 AAU Simcoe® hop pellets (2 min.) (0.5 oz./14 g at 12.8% alpha acids)
0.5 oz. (14 g) Ahtanum™ whole leaf hops (dry hop)
0.5 oz. (14 g) Amarillo® whole leaf hops (dry hop)
0.5 oz. (14 g) Simcoe® whole leaf hops (dry hop)
0.2 oz. (6 g) Warrior® whole leaf hops (dry hop)
½ tsp. Irish moss (30 min.)
½ tsp. yeast nutrient (15 min.)
Wyeast 1335 (British Ale II) or White Labs WLP007 (Dry English Ale) yeast
¾ cup of corn sugar (if priming)

Step by Step

Note: If you have difficulty locating Golden Promise malt, substitute Maris Otter. Steep the crushed grain in 2 gallons (7.6 L) of water at 153 °F (67 °C) for 30 minutes. Remove grains from the wort and rinse with 2 quarts (1.9 L) of hot water. Add the liquid malt extract plus the first wort hop addition and boil for 60 minutes. While boiling, add the hops, Irish moss and yeast nutrient as per the schedule. Now add the wort to 2 gallons (7.6 L) of cold water in the sanitized fermenter and top off with cold water up to 5 gallons (19 L).

Cool the wort to 75 °F (24 °C). Pitch your yeast and aerate the wort heavily. Allow the beer to cool to 68 °F (20 °C). Hold at that temperature until fermentation is complete. Transfer to a carboy, avoiding any splashing to prevent aerating the beer, and add the dry hops. Allow the beer to condition for one week and then bottle or keg. Allow the beer to carbonate and age for about two weeks.



The Tri-Centennial DIPA

(5 gallons/19 L, all-grain)
OG = 1.096 FG = 1.021
IBU = 106 SRM = 11 ABV = 10.7%

Ingredients

18 lbs. (8.17 kg) Maris Otter pale ale malt
1 lb. (0.45 kg) Carared® (20 °L)
30 AAU Centennial hops (first wort hop)
(3 oz./85 g at 10% alpha acids)
30 AAU Centennial hops (5 min.)
(3 oz./85 g at 10% alpha acids)
3 oz. (85 g) Centennial hops (dry hop)
½ whirlfloc tablet (5 min.)
White Labs WLP001 (California Ale),
Wyeast 1056 (American Ale) or
Safale US-05 yeast
(4.25 qt./~4.25 L yeast starter)
¾ cup corn sugar (if priming)

Step by Step

Mill the grains. Dough in using 4.5 gallons (17 L) of water with a target mash holding temperature of 148 °F (64 °C). Hold the mash temperature for approximately 60 minutes or until the conversion is complete. Raise the temperature of the mash to 168 °F (76 °C) and begin sparging with 170 °F (77 °C) water until you collect 6 gallons (23 L) of wort in the kettle. As runoff begins, add the first wort hops to the kettle.

The total wort boiling time for this recipe is 60 minutes. When there are 5 minutes remaining in the boil, be sure to add your whirlfloc or other kettle fining agent to help with precipitation of the hot break. Add the second hop addition 5 minutes prior to flame out as well.

Cool the wort to 70 °F (21 °C), transfer to your fermentation vessel and aerate the wort adequately. Since this is a very high gravity beer, you will likely need to use pure oxygen to get the levels of 10–12 ppm needed to ensure a complete fermentation. It should also be noted that normal pitching rates will be inadequate. To be safe, you should pitch 2–3 times the amount of yeast you would normally pitch for a 1.050 beer. (The yeast starter size listed in the ingredients list is a compromise between the optimal amount of yeast for fermenting a beer of this gravity and the fact that overpitching can scrub some hop character.) Add the contents of your yeast starter to the chilled wort. Ferment around 70 °F (21 °C) until the final gravity is reached, which should be in 10 to 14 days. Rack to a secondary vessel and allow the beer to mature for one week around the same temperature. Then dry hop the beer for an additional week. Your beer is

now ready to rack into a keg or bottles along with the priming sugar.

THE TRI-CENTENNIAL DIPA

(5 gallons/19 L, extract with grains)
OG = 1.096 FG = 1.021
IBU = 106 SRM = 11 ABV = 10.7%

Ingredients

12.25 lbs. (5.55 kg) light liquid malt extract
1 lb. (0.45 kg) Carared® (20 °L)
30 AAU Centennial hops (first wort hop)
(3 oz./85 g at 10% alpha acids)
30 AAU Centennial hops (5 min.)
(3 oz./85 g at 10% alpha acids)
3 oz. (85 g) Centennial hops (dry hop)
½ whirlfloc tablet (5 min.)
White Labs WLP001 (California Ale),
Wyeast 1056 (American Ale) or
Safale US-05 yeast
(4.25 qt./~4.25 L yeast starter)
¾ cup corn sugar (if priming)

Step by Step

Mill the specialty grains. Place the milled grains in a grain bag. Steep them in 2 gallons (7.6 L) of 148 °F (66 °C) water for 30 minutes. Add the first wort hops to the kettle. Rinse the grain bag with about 2 qts. (1.9 L) of water and allow it to drip into the kettle for about 15 minutes, but be sure not to squeeze the bag.

Add enough water for a pre-boil volume of 6 gallons (23 L). (If you cannot perform a full-wort boil, split your wort into two 2.5-gallon (9.5-L) batches and boil individually. Split the ingredients proportionally between batches.) Stir in the malt extracts and begin the 60-minute boil. When there are 5 minutes remaining in the boil, be sure to add your whirlfloc or other kettle fining agent to help with precipitation of the hot break. Add the second hop addition 5 minutes prior to flame out as well. Cool the wort to 70 °F (21 °C), transfer to your fermentation vessel and aerate the wort adequately. Add the contents of your yeast starter to the chilled wort. Ferment around 70 °F (21 °C) until the final gravity is reached, which should be in 10 to 14 days. Rack to a secondary vessel and allow the beer to mature for one week around the same temperature. Then dry hop the beer for an additional week. Your beer is now ready to rack into a keg or bottles along with the priming sugar.

Three Floyds Brewing Co.'s Dreadnaught Clone

(5 gallons/19 L, all-grain)
OG = 1.084 FG = 1.021
IBU = 100+ SRM = 11 ABV = 8.9%

Ingredients

16.25 lbs. (7.4 kg) American
2-row pale malt
1.25 lbs. (0.57 kg) melanoidin
malt (27 °L)
8 AAU Warrior® hops (60 min.)
(0.53 oz./15 g at 15% alpha acids)
8 AAU Simcoe® hops (60 min.)
(0.62 oz./17 g at 13% alpha acids)
8 AAU Centennial hops (45 min.)
(0.72 oz./20 g at 11% alpha acids)
8 AAU Centennial hops (30 min.)
(0.72 oz./20 g at 11% alpha acids)
8 AAU Cascade hops (15 min.)
(1.6 oz./45 g at 5% alpha acids)
1.5 oz. (43 g) Cascade whole hops (dry hops)
1 tsp. Irish moss (15 min.)
Wyeast 1968 (London ESB) or White
Labs WLP002 (English Ale) yeast
¾ cups corn sugar (if priming)

Step by Step

Mash at 159 °F (71 °C) for 60 minutes. Boil the wort 90 minutes, adding hops at the times indicated in the ingredient list. After the boil, cool and ferment at 68 °F (20 °C). Add dry hops after fermentation slows.

THREE FLOYDS BREWING CO.'S DREADNAUGHT CLONE

(5 gallons/19 L, extract with grains)
OG = 1.084 FG = 1.021
IBU = 100+ SRM = 11 ABV = 8.9%

Ingredients

8 lbs. (3.6 kg) extra light dried malt extract
1.33 lbs. (0.6 kg) 2-row pale malt
1.25 lbs. (0.57 kg) melanoidin
malt (27 °L)
8 AAU Warrior® hops (60 min.)
(0.53 oz./15 g at 15% alpha acids)
8 AAU Simcoe® hops (60 min.)
(0.62 oz./17 g at 13% alpha acids)
8 AAU Centennial hops (45 min.)
(0.72 oz./20 g at 11% alpha acids)
8 AAU Centennial hops (30 min.)
(0.72 oz./20 g at 11% alpha acids)
8 AAU Cascade hops (15 min.)
(1.6 oz./45 g at 5% alpha acids)
1.5 oz. (43 g) Cascade whole hops (dry hops)
1 tsp. Irish moss (15 min.)
Wyeast 1968 (London ESB) or White
Labs WLP002 (English Ale) yeast
¾ cups corn sugar (if priming)

Step by Step

Steep crushed grains in 3.2 quarts (3 L) of water at 159 °F (71 °C) for 45 minutes. Wash the grains with 1 gallon (4 L) hot water. Top off brewpot to 6.5 gallons (25.6 L). Boil the wort 60 minutes, adding hops at the times indicated. Ferment at 68 °F (20 °C). Add dry hops after fermentation slows.

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SPECIALTY IPA

by JAMIL ZAINASHEFF



When I started brewing, there was

only one style category for India pale ale. Just a single category, no subcategories. Several years later, people had begun talking about the differences between English and American IPA, and eventually double IPA entered the mix. It stayed that way for quite some time. Years went by and people began making hoppier and hoppier versions of red ales, brown ales, Belgian ales, and stouts, but we talked about them as being “American” or “West Coast” variants of those styles. Eventually, those hoppier brews kept climbing up the hoppy ladder. They left the “it’s too hoppy for style” world and at some point we started calling them black IPA, red IPA, white IPA, or something else that is descriptive but also oxymoronic. After all, how is it possible to have black pale ale? That did not matter to us brewers. In fact, this new style of IPA became so popular that the Great American Beer Festival added an “American Black Ale” category to handle it. Of course, that does not make a lot of sense either, as it leaves all of the other IPA-ish ales and even IPA lagers out in the cold. So what do we call it then? The Beer

Judge Certification Program (BJCP) added a new category called “Specialty IPA” in its 2015 revision to the style guide, and while not a very sexy name, it certainly is inclusive. The key thing to know about this new category is that IPA does not literally mean India pale ale, but rather is a descriptor, meaning a hop-forward, firmly bitter beer, with a relatively dry finish. With that in mind, black IPA does not seem so silly.

The question is how do you know you have brewed a great specialty IPA? There is a lot of room for interpretation. For example, the bitterness may be balanced with other flavors, a little more malty, like an English-style IPA, or it could be much sharper, with just a light background hint of malt sweetness to balance, more like a West Coast IPA. Regardless, a good example needs firm bittering and the same goes for the hop character. A good example should have more hop character than other non-IPA styles, but balance is still critical even in a hoppy beer. For example, when making a Belgian-style IPA, the flavors of the hops cannot completely overwhelm any perception of the Belgian yeast character. Likewise, when making a red IPA, there should be some crystal malt flavors present through the hoppiness. If you cannot perceive those other flavors, then the beer has lost its balance. Another balance to think

about when brewing a great specialty IPA is the finish. An IPA should never finish sweet and heavy. That is more American barleywine than it is IPA. It is okay to have some sweetness, but you want to keep it in check; you want enough attenuation and a dry enough finish to allow the hops to be a signature item in the beer.

Regardless, when you envision a specialty IPA you want to think about how the key elements of the IPA style work alongside any other character you are introducing into the beer. For example, at Heretic Brewing Company, we have a red IPA called Evil Twin. The concept I came up with was to have tropical fruit, melon, and citrus hop notes balanced against a caramel malt flavor. I did not want to focus on the piney, cat urine, resinous types of hops in Evil Twin because I felt it would overwhelm the caramel malt flavor. If I tried to increase the caramel malt flavor enough to balance those types of hops, the beer would become too heavy and full to finish IPA-like. I had a vision in mind and worked toward that balanced vision in the ingredients we used.

I think the overall concept of specialty IPA is still wide open, but I do doubt certain things will work well. For example, would smoked malt work well with a bold West Coast style IPA? I do not think so. The bold hop character full of pine and citrus would clash with the smoke creating a harsh finish. Of course, I said the same thing about Belgian-style beers being very hoppy. I claimed that the phenolic character of the yeast would clash with the hop character. Well, I was right in that it can clash horribly, but I was wrong in thinking that some great brewers would not figure out the balance and the types of hops needed to make it work beauti-

fully. So, perhaps you should ignore what I say about limits.

Belgian IPA

The most certain path to success on Belgian-style IPA is to use a light color base beer. The grist should be mostly continental Pilsner malt, perhaps a little bit of other light color specialty malt,

more you want to avoid too much of the dry, acrid, bitterness that is part of stout. The key is to use huskless/debittered black malt to develop color without too harsh of a roasty flavor. One of my favorites is Briess Blackprinz®. It is made from huskless barley and even in larger quantities it provides a mild roast character with-



IPA does not literally mean India pale ale, but rather is a descriptor, meaning a hop-forward, firmly bitter beer, with a relatively dry finish.



and possibly some simple sugar. Think blond, tripel or golden strong as a base. Keep in mind you want a drier finish in an IPA, so do not create wort that will have lots of residual sweetness. For yeast selection, you will want to select a Belgian strain that attenuates well but does not produce a large amount of phenols, such as White Labs WLP530 (Abbey Ale). A large amount of spicy, clove-like phenols can make the beer more difficult to balance. For the hop selection, steer away from hops that have a similar spicy character. Go more toward the floral/citrus and less toward the spicy, piney, and resin.

Black IPA

When brewing a black IPA it is important to avoid just making a very hoppy American stout, but that does not mean a complete lack of roast character. My good friend Travis, who really loves this style, likes to push the boundaries of the roast level in his black IPA. That can be fine, but the more roast character you include, the

out the harsh bite of traditional black malt. Debittered roast malts still contribute some roast flavors and will give a beer a distinct chocolate/coffee flavor if you use enough. Generally, about 5% of the grist will give a dark color without too much roast flavor. You can add other character malts to build interesting background notes that might be biscuit- or bread-like. Crystal malt is a good addition in black IPA because it adds a balancing sweetness to the dryness that is created by the roast malt. Again, about 5% is a good ballpark measure.

Hop selection is wide open, but I would stick with hops that have more American-type character. Look for hops with citrus, piney, resin, fruity, or melon characteristics. Spicy/clove notes and dark malt character don't always blend well. If you are going for competition, select those hops with persistent aromatic qualities, but always look for balance. Sometimes all it takes is adding more hops, but sometimes less is more. If you overload your

beer with too much vegetal matter, it can mask some of that great hop character you are trying to achieve.

When selecting yeast, I steer towards those that make great stouts. These tend to be either a clean American-style yeast or a British-style yeast. Avoid highly phenolic or extremely funky yeasts that would clash with the dark malt character.

Red IPA

Many assume there was already a category in the style guide for red IPA before the 2015 revision. They would point to American amber, which is not a red IPA. The style guide for the Great American Beer Festival included a red ale and imperial red ale category, but they seemed to include everything but red IPA in the description. Red IPA, while being hop-forward, needs to have some malt balance yet still finish dry like an IPA. The problem with the imperial red category is that it relies on a much bigger, heavier beer, too malty-rich to be an IPA. The amber category is a lighter beer, not big enough or hoppy enough to be an IPA. Between those two styles is where red IPA lives.

Every red beer needs some crystal malt not only for color, but for the expected flavor. The trick is to have enough crystal malt to produce the color and caramel flavor you want, but a dry enough finish for an IPA. There are a couple tricks to achieving the right finish. One method is to go with a low mash temperature, perhaps some dextrose added, and have the beer attenuate out as dry as possible. The remaining (mostly unfermentable) caramel malt character is the balancing sweetness left. This can work well, but there is another technique to consider — adding highly kilned malts. As in the black IPA, highly kilned malts always add some

dryness to a beer. In a red IPA, you can add a little roasted barley or huskless roasted barley to add both color and a touch of dryness that helps balance the sweetness from the caramel malt.

The hop selection is similar to black IPA, but try to balance the hop character with the malt character. Choose hops that complement and add focus to the caramel and other malt flavors rather than just blasting any hops. Try to create a hop-forward beer, but with balance. Imagine your beer is like a painting. You have painted this lovely landscape with malt, so when it comes time to add hops, do not pour a bucket of green paint over the top. Instead, use a brush and paint with thought and purpose. Use more than one shade of green to enhance your painting, not overwhelm it.

When selecting yeast, keep in mind the balance of hops and malt. Some yeasts, such as White Labs WLP001 (California Ale) or Wyeast 1056 (American Ale) are popular because they tend to allow both the hops and malt to come through, although the balance tends to favor hop character. There are other yeasts that might work equally well or better, but they will have a different effect on the hop/malt balance. Some will be much more malt-forward and others can be much more hop-forward.

Wheat/Rye IPA

I think Sierra Nevada's Ruthless Rye is an excellent example of what can be done in the specialty IPA category. The trick when brewing any wheat or rye beer is to make the drinker believe that they taste wheat or rye in the beer. When making wheat IPA, you can go with 100% wheat malt, as less just will not seem like wheat. Even at 100%, it is still subtle. Use rice hulls to avoid a stuck sparge when brewing with

100% wheat malt. Conversely, if you want to make a rye IPA, you cannot use 100% rye. Well, you can, but it turns out as a snotty, sloppy mess. Instead, use rye for a portion of your grist, and then use other ingredients to make the beer taste like there is more rye than you really used. You are trying to reinforce the perception of rye without the nasty effects of rye. One trick many brewers use in less hoppy beers is caraway. Because of its use in rye breads, people associate caraway with the flavor of rye. It is a simple trick, but it may not fool experienced palates. Since you are making a much hoppier beer, you can use hops to aid in the perception of rye. At Heretic, we brew Gramarye, a rye pale ale that earned a gold medal at the 2012 Great American Beer Festival in the rye beer category. This beer has only 10% rye in it, but people always comment on the great rye taste. The trick is the use of hops that have a spicy, slightly black pepper character to them, such as US-grown Cascade. People taste the spicy hop note and immediately identify it with their expectation of rye character.

When selecting yeast for this style, the easy choice and most likely to produce success is clean tasting ale yeast, like White Labs 001 (California Ale) or Wyeast 1056 (American Ale). I would hesitate to use yeast that produces a strong phenolic character. While a tiny bit of clove character might accentuate the perception of rye, too much could be a train wreck. I am sure some might consider trying a German wheat beer strain, but the merging of a too hoppy German Roggenbier and a rye IPA may not be an easy thing to achieve. The character of most German wheat yeasts is so strong, that it would take a deft hand at selecting hops to marry them well with the fermentation character.



BELGIAN IPA

Ithaca Beer Co.'s IPAbbey clone

(5 gallons/19 L, extract with grain)
OG = 1.072 FG = 1.008
IBU = 76 SRM = 9 ABV = 8.3%

Ingredients

6.6 lbs. (3 kg) Pilsner liquid malt extract
1.6 lbs. (0.73 kg) light dried malt extract
0.4 lb. (0.18 kg) Gambrinus honey malt
(If unavailable substitute dark Munich malt)
1.6 lbs. (0.72 kg) powdered dextrose (30 min.)
13 AAU Simcoe® pellet hops (90 min.)
(1 oz./28 g at 13% alpha acids)
7.3 AAU Amarillo® pellet hops (90 min.)
(1 oz./28 g at 7.3% alpha acids)
3.5 AAU Saaz pellet hops (90 min.)
(1 oz./28 g at 3.5% alpha acids)
4.9 AAU Saaz pellet hops (10 min.)
(1.4 oz./40 g at 3.5% alpha acids)
18.2 AAU Simcoe® pellet hops (5 min.)
(1.4 oz./40 g at 13% alpha acids)
10 AAU Amarillo® pellet hops (0 min.)
(1 oz./28 g at 10% alpha acid)
1 oz. (28 g) Simcoe® whole leaf hops (dry hop)
1 oz. (28 g) Amarillo® whole leaf hops (dry hop)
1 oz. (28 g) Saaz whole leaf hops (dry hop)
½ tsp. yeast nutrient (15 min.)
White Labs WLP530 (Abbey Ale),
Wyeast 3787 (Trappist High Gravity), or
Lallemand Abbaye Belgian Ale yeast
¾ cup corn sugar (if priming)

Step by Step

Steep the crushed grain in 2 qts. (1.8 L) of water at 149 °F (65 °C) for 30 minutes. Remove grains from the wort and rinse with 2 quarts (1.8 L) of hot water. Add the liquid and dry malt extracts, then top off the 3.5 gallons (13.2 L) and bring to a boil. While boiling, add the hops, powdered dextrose and yeast nutrient as per the schedule. After the boil, add the wort to 2 gallons (7.6 L) of cold water in the fermenter and top off with cold water up to 5 gallons (19 L).

Cool the wort to 80 °F (27 °C). Pitch your yeast and aerate the wort heavily. Allow the beer to cool to 75 °F (24 °C). Hold at that temperature until fermentation is complete. Transfer to a carboy, avoiding any splashing to prevent aerating the beer. Add the dry hops and let the beer condition for 1 week. Strain the dry hops and then bottle or keg. Allow to carbonate and age for two weeks and enjoy your IPAbbey ale clone.

All grain option:

This is a single step infusion mash. Replace the malt syrup with 8 lbs. (3.6 kg) Pilsner malt and 4 lbs. (1.8 kg) 2-row pale malt. Mix the crushed grain with 4 gallons (15 L) of 170 °F (77 °C) water to stabilize at 149 °F (65 °C) for 60 minutes. Sparge slowly with 175 °F (79 °C) water. Collect approximately 6.5 gallons (25 L) of wort runoff to boil for 90 minutes. Reduce the 90-minute hop addition to 0.9 oz. (26 g) of each hop variety to allow for the higher utilization factor of a full wort boil. Follow the remainder of the extract with grain recipe.

Tragen Babel

(5 gallons/19L, all-grain)
OG = 1.064 FG = 1.014
IBU = 37 SRM = 11 ABV = 6.9%

Ingredients

9.5 lbs. (4.3 kg) 2-row pale malt
1 lb. (0.45 kg) flaked wheat
8 oz. (0.23 kg) Vienna malt
8 oz. (0.23 kg) Caravienne® malt
8 oz. (0.23 kg) aromatic malt
1 lb. (0.45 kg) clear Belgian candi sugar (15 min.)
7.5 AAU Crystal hops (60 min.)
(2.5 oz./71 g at 3% alpha acids)
3 AAU Crystal hops (15 min.)
(1 oz./28 g at 3% alpha acids)
4 AAU Saaz hops (15 min.)
(1 oz./28 g at 4% alpha acids)
1 oz. (28 g) Citra® hops (dry hop)
1 oz. (28 g) Amarillo® hops (dry hop)
½ whirlfloc tablet (5 min.)
Safale US-05 yeast
White Labs WLP500 (Trappist Ale) yeast
1 cup corn sugar (if priming)

Step by Step

Mash grains at 152 °F (67 °C) for 45 minutes in 15 qts. (14 L) of water. Boil wort for 60 minutes, adding your first hop addition at the beginning of the boil. Add second hop addition and sugar with 15 minutes left in the boil and whirlfloc with 5 minutes remaining. Cool wort below 70 °F (21 °C) and pitch dried yeast. After signs of active fermentation are present, approximately 12–24 hours, pitch the Belgian yeast. After primary fermentation is complete, add dry hops to secondary and allow 4 to 14 days before bottling. For a higher carbonation level, use 1¾ cups of corn sugar when using thicker Champagne-style bottles or other bottles that are rated for high pressure.

TRAGEN BABEL

(5 gallons/19L, partial mash)

OG = 1.064 FG = 1.014
IBU = 37 SRM = 11 ABV = 6.9%

Ingredients

4 lbs. (1.8 kg) Pilsen liquid malt extract.
1.25 lbs. (0.57 kg) light dried malt extract
1.5 lbs. (0.68 kg) 2-row pale malt
8 oz. (0.23 kg) wheat malt
8 oz. (0.23 kg) flaked wheat
8 oz. (0.23 kg) Vienna malt
8 oz. (0.23 kg) Caravienne® malt
8 oz. (0.23 kg) aromatic malt
7.5 AAU Crystal hops (60 min.)
(2.5 oz./71 g at 3% alpha acids)
3 AAU Crystal hops (15 min.)
(1 oz./28 g at 3% alpha acids)
4 AAU Saaz hops (15 min.)
(1 oz./28 g at 4% alpha acids)
1 oz. (28 g) Citra® hops (dry hop)
1 oz. (28 g) Amarillo® hops (dry hop)
½ whirlfloc tablet (5 min.)
Safale US-05 yeast
White Labs WLP500 (Trappist Ale) yeast
1 cup corn sugar (if priming)

Step by Step

If you can find a malt extract made from Belgian pale or Pilsner malt, use that, otherwise use English malt extract. You will need a 2-gallon (7.6-L) beverage cooler and a large steeping bag to follow these instructions. Add crushed grains and flaked wheat to grain bag. Add 5.5 qts. (5.2 L) of 163 °F (73 °C) water to cooler and submerge bag. Mash for 45 minutes at 152 °F (67 °C). Heat 5.5 qts. (5.2 L) of water to 180 °F (82 °C) near end of mash. Run off wort by collecting about 2 cups of wort from the cooler, then adding the same volume of hot water to the top of the grain bed. Repeat until you collect about 2.5 gallons (9.5 L) of wort this way. (Don't let the grain bed temperature rise above 170 °F/77 °C.) Stir in dried malt extract and bring wort to a boil.

Boil wort for 60 minutes, adding your first hop addition at the beginning of the boil. Add second hop addition and sugar with 15 minutes left in the boil and whirlfloc with 5 minutes remaining. Cool wort and transfer to fermenter. Top up to 5 gallons (19 L), aerate and pitch dried yeast. Pitch Belgian yeast once fermentation starts. Dry hop for 4 to 14 days. For a higher carbonation level, use 1¾ cups of corn sugar when using thicker Champagne-style bottles or other bottles that are rated for high pressure.

Tips for Success:

For a "cleaner" beer, hold the fermentation temperature steady around 68–70 °F (20–21 °C). For a beer with more "Belgian-y" esters, let the fermentation climb after the first couple days to the mid 70s °F (~24 °C).



BLACK IPA

Barley Brown's Brewing Co.'s Turmoil Cascadian Dark Ale clone

(5 gallons/19 L, all-grain)
OG = 1.070 FG = 1.010
IBU = 94 SRM = 35 ABV = 8.4%

Ingredients

11.5 lbs. (5.2 kg) 2-row pale malt
1 lb. 2 oz. (0.5 kg) Weyermann Carafa® Special II (dehusked) malt (450 °L)
1 lb. 2 oz. (0.5 kg) Munich malt
8 oz. (0.23 kg) crystal malt (40 °L)
12 oz. (0.34 kg) wheat malt
3 AAU Columbus hops (first wort hop) (0.2 oz./5.7 g at 15% alpha acids)
1.3 AAU Simcoe® hops (first wort hop) (0.1 oz./2.8 g at 12.8% alpha acids)
7 AAU Magnum hops (60 min.) (0.5 oz./14 g at 14% alpha acids)
6.4 AAU Simcoe® hops (60 min.) (0.5 oz./14 g at 12.8% alpha acids)
5 AAU Amarillo® hops (30 min.) (0.5 oz./14 g at 10% alpha acids)
2.6 AAU Cascade hops (15 min.) (0.5 oz./14 g at 5.25% alpha acids)
2.6 AAU Cascade hops (2 min.) (0.5 oz./14 g at 5.25% alpha acids)
3.9 AAU Cascade hops (0 min.) (0.75 oz./21 g at 5.25% alpha acids)
1.25 oz. (35 g) Amarillo® hops (dry hop)
½ tsp. yeast nutrient (15 min.)
½ tsp. Irish moss (30 min.)
White Labs WLP001 (California Ale),
Wyeast 1056 (American Ale), or
Safale US-05 yeast
¾ cup corn sugar (if priming)

Step by Step

This is a single step infusion mash. Mix the crushed grains with 19 quarts (18 L) of 163 °F (73 °C) water to stabilize at 152 °F (67 °C) for 60 minutes. Sparge slowly with 170 °F (77 °C) water. Add first wort hops (FWH) as you are collecting your wort. Collect approximately 7 gallons (26 L) of wort runoff to boil for 90 minutes adding hops, yeast nutrients and Irish moss at the times indicated.

After the boil is complete, cool the wort to 75 °F (24 °C). Pitch your yeast and aerate the wort heavily. Allow the beer to cool to 68 °F (20 °C). Hold at that temperature until fermentation is complete. Then transfer to a carboy, avoiding any splashing to prevent aerating the beer and add the dry hops. Allow the beer to condition for one week

and then bottle or keg as usual. Allow the beer to carbonate and age three weeks before enjoying.

BARLEY BROWN'S BREWING CO.'S TURMOIL CASCADIAN DARK ALE CLONE

(5 gallons/19 L, partial mash)
OG = 1.070 FG = 1.010
IBU = 94 SRM = 35 ABV = 8.4%

Ingredients

6.6 lbs. (3 kg) Muntons light, unhopped, liquid malt extract
1 lb. 2 oz. (0.5 kg) Briess light dried malt extract
1 lb. 2 oz. (0.5 kg) Weyermann Carafa® Special II (dehusked) malt (450 °L)
1 lb. 2 oz. (0.5 kg) Munich malt
8 oz. (0.23 kg) crystal malt (40 °L)
12 oz. (0.34 kg) wheat malt
3 AAU Columbus hops (first wort hop) (0.2 oz./5.7 g at 15% alpha acids)
1.3 AAU Simcoe® hops (first wort hop) (0.1 oz./2.8 g at 12.8% alpha acids)
9.8 AAU Magnum hops (60 min.) (0.7 oz./19.8 g at 14% alpha acids)
6.4 AAU Simcoe® hops (60 min.) (0.5 oz./14 g at 12.8% alpha acids)
5 AAU Amarillo® hops (30 min.) (0.5 oz./14 g at 10% alpha acids)
2.6 AAU Cascade hops (15 min.) (0.5 oz./14 g at 5.25% alpha acids)
2.6 AAU Cascade hops (2 min.) (0.5 oz./14 g at 5.25% alpha acids)
3.9 AAU Cascade hops (0 min.) (0.75 oz./21 g at 5.25% alpha acids)
1.25 oz. (35 g) Amarillo® hops (dry hop)
½ tsp. yeast nutrient (15 min.)
½ tsp. Irish moss (30 min.)
White Labs WLP001 (California Ale),
Wyeast 1056 (American Ale), or
Safale US-05 yeast
¾ cup corn sugar (if priming)

Step by Step

Steep the crushed grain in 2 gallons (7.6 L) of water at 152 °F (67 °C) for 30 minutes. Remove grains from the wort and rinse with 2 quarts (1.8 L) of hot water. Add the dried malt extracts and first wort hops then boil for 60 minutes. While boiling, add the remainder of the hops, Irish moss and yeast nutrient as per the schedule. Add the liquid malt extract with 15 minutes left in the boil. After the boil is complete, add the wort to 2 gallons (7.6 L) of cold water in the sanitized fermenter and top off with cold water up to 5 gallons (19 L). Cool the wort to 75 °F (24 °C). Pitch your yeast and aerate the wort heavily. Allow the beer to cool to 68 °F (20 °C). Hold at that temperature until fermentation is complete. Transfer to a carboy,

avoiding any splashing to prevent aerating the beer and add the dry hops. Allow the beer to condition one week and then bottle or keg. Allow the beer to carbonate and age for three weeks.

Bombay After Dark

(5 gallons/19 L, all-grain)
OG = 1.070 FG = 1.018
IBU = 49 SRM = 27 ABV = 7.1%

Ingredients

11.5 lbs. (5.2 kg) 2-row pale malt
1 lb. (0.45 kg) dried rice extract (15 min.)
12 oz. (0.34 kg) flaked barley
8 oz. (0.23 kg) chocolate malt
8 oz. (0.23 kg) caramel malt (80 °L)
6 oz. (0.17 kg) Carafa® Special I malt (300 °L)
4 oz. (113 g) extra dark caramel malt (120 °L)
8.8 AAU Cascade hops (60 min.) (1.1 oz./31 g at 8% alpha acids)
14 AAU Columbus hops (5 min.) (1 oz./28 g at 14% alpha acids)
1 oz. (28 g) Columbus hops (0 min.)
1 oz. (28 g) Chinook hops (0 min.)
1 oz. (28 g) Chinook hops (dry hop)
½ whirlfloc tablet or 1 tsp. Irish moss (5 min.)
Wyeast 1056 (American Ale),
White Labs WLP001 (California Ale), or
Safale US-05 yeast
(2.5 qt./2.5 L yeast starter or 10 grams of dried yeast)
1 cup corn sugar (if priming)

Step by Step

Adjust water chemistry for a dark beer. (If using reverse osmosis or distilled water, add 1 tsp. chalk, ½ tsp. gypsum and ¼ tsp. calcium chloride per 6 gallons/23 L of brewing liquor). Mash grains at 153 °F (67 °C) in 17 qts. (16 L) of water for 45 minutes. Boil wort for 60 minutes, adding hops at times indicated. Add rice extract with 15 minutes remaining and whirlfloc tablets for final 5 minutes of the boil. Whirlpool wort for 5 minutes before chilling. (Skipping this step will lower the bitterness of your beer.) Cool wort, aerate well and pitch yeast. Ferment at 62 °F (17 °C). When fermentation is complete, dry hop for four to seven days and bottle or keg as normal.

BOMBAY AFTER DARK

(5 gallons/19 L, extract with grains)
OG = 1.070 FG = 1.018
IBU = 49 SRM = 27 ABV = 7.1%

Ingredients

6.25 lbs. (2.8 kg) light dried malt extract



- 6 oz. (0.17 kg) 2-row pale malt
- 1 lb. (0.45 kg) dried rice extract (15 min.)
- 8 oz. (0.23 kg) chocolate malt
- 8 oz. (0.23 kg) caramel malt (80 °L)
- 6 oz. (0.17 kg) Carafa® Special I malt (300 °L)
- 4 oz. (113 g) extra dark caramel malt (120 °L)
- 8.8 AAU Cascade hops (60 min.)
(1.1 oz./31 g at 8% alpha acids)
- 1 oz. (28 g) Columbus hops (5 min.)
- 1 oz. (28 g) Columbus hops (0 min.)
- 1 oz. (28 g) Chinook hops (0 min.)
- 1 oz. (28 g) Chinook hops (dry hop)
- ½ whirlfloc tablet or 1 tsp. Irish moss (5 min.)
- Wyeast 1056 (American Ale),
White Labs WLP001 (California Ale), or
Safale US-05 yeast
- 1 cup corn sugar (if priming)

Step by Step

Steep for 45 minutes at 153 °F (67 °C) in 2.8 qts. (2.6 L) of water. Rinse grain bag with 1.5 qts. (1.4 L) of water at 170 °F (77 °C). Add water and dried malt extract to “grain tea” to make at least 3 gallons (11 L). Boil wort for 60 minutes, adding hops at times indicated. When 15 minutes remain in the boil, stir in rice extract. With 5 minutes remaining in the boil add the whirlfloc tablet. Whirlpool for 5 minutes after the heat is turned off. (Just stir the wort to get it rotating, then put the cover on your brewpot). Chill wort and transfer to fermenter. Add water to make 5 gallons (19 L). Aerate well and pitch yeast. Ferment at 62 °F (17 °C). When fermentation is complete, dry hop for four to seven days.

BOMBAY AFTER DARK

(5 gallons/19 L, partial mash)
OG = 1.070 FG = 1.018
IBU = 49 SRM = 27 ABV = 7.1%

Ingredients

- 2 lbs. (0.91 kg) light dried malt extract
- 4.5 lbs. (2 kg) light liquid malt extract (15 min.)
- 1 lb. 10 oz. (0.73 kg) 2-row pale malt
- 1 lb. (0.45 kg) dried rice extract (15 min.)
- 12 oz. (0.34 kg) flaked barley
- 8 oz. (0.23 kg) chocolate malt
- 8 oz. (0.23 kg) caramel malt (80 °L)
- 6 oz. (0.17 kg) Carafa® Special I malt (300 °L)
- 4 oz. (113 g) extra dark caramel malt (120 °L)
- 8.8 AAU Cascade hops (60 min.)
(1.1 oz./31 g at 8% alpha acids)
- 14 AAU Columbus hops (5 min.)
(1 oz./28 g at 14% alpha acids)
- 1 oz. (28 g) Columbus hops (0 min.)
- 1 oz. (28 g) Chinook hops (0 min.)

- 1 oz. (28 g) Chinook hops (dry hop)
- ½ whirlfloc tablet or 1 tsp. Irish moss (5 min.)
- Wyeast 1056 (American Ale),
White Labs WLP001 (California Ale), or
Safale US-05 yeast
- (2.5 qt./2.5 L yeast starter or 10 grams of dried yeast)
- 1 cup corn sugar (if priming)

Step by Step

You will need a 2-gallon (7.8-L) beverage cooler and a large steeping bag to follow these instructions. Add pale malt, flaked barley and crystal malt (80 °L) to grain bag. Add 3.5 qts. (3.4 L) of 164 °F (73 °C) water to cooler and submerge bag. Let steep for 10 minutes. Open bag and stir in remaining dark grains, 2 qts. (1.8 L) of 164 °F (73 °C) water and ½ tsp chalk (calcium carbonate). Let rest for another 35 minutes. Heat 5.5 qts. (5.2 L) of water to 180 °F (82 °C) near end of rest. Run off wort by collecting about 2 cups of wort from the cooler, then adding the same volume of hot water to the top of the grain bed. Repeat until you collect about 2.5 gallons (9.5 L) of wort this way. Stir in dried malt extract and bring wort to a boil. Boil wort for 60 minutes, adding hops at times indicated. When 15 minutes remain in the boil, stir in rice extract and liquid malt extract. With 5 minutes remaining in the boil, add the whirlfloc tablet. Whirlpool for 5 minutes after the heat is turned off. (Just stir the wort to get it rotating, then put the cover on your brewpot). Chill wort and transfer to fermenter. Add water to make 5 gallons (19 L). Aerate well and pitch yeast. Ferment at 62 °F (17 °C). When fermentation is complete, dry hop for four to seven days.

Double Black IPA

(5 gallons/19 L, all-grain)
OG = 1.085 FG = 1.018
IBU = 100+ SRM = 33 ABV = 9.3%

Ingredients

- 13.2 lbs. (6 kg) North American pale malt (2 °L)
- 1.1 lbs. (0.46 kg) crystal malt (40 °L)
- 14.1 oz. (0.4 kg) huskless black malt (500 °L)
- 1.7 lbs. (0.75 kg) dextrose (5 min.)
- 34 AAU Columbus pellet hops (60 min.)
(2 oz./57 g at 17% alpha acids)
- 1 oz. (28 g) Columbus pellet hops (0 min.)
- 1 oz. (28 g) Amarillo® pellet hops (0 min.)
- 1 oz. (28 g) Simcoe® pellet hops (0 min.)
- 2 oz. (57 g) Amarillo® pellet hops (dry hop)
- 2 oz. (57 g) Simcoe® pellet hops (dry hop)
- Irish moss (15 min.)

- White Labs WLP001 (California Ale),
Wyeast 1056 (American Ale) or
Safale US-05 yeast
- ¾ cup corn sugar (if priming)

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 149 °F (65 °C). Hold the mash at 149 °F (65 °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 6.5 gallons (25 L) and the gravity is 1.055.

The total wort boil time is 90 minutes. The first hop addition comes with 60 minutes remaining in the boil. Add Irish moss or other kettle finings and the dextrose as per the schedule. Add the second hop additions at flame out. Chill the wort to 67 °F (19 °C) and aerate thoroughly. The proper pitch rate is 3 packages of liquid yeast or 1 package of liquid yeast in a 4.5-liter (1-gallon) starter.

Ferment at 67 °F (19 °C) until the yeast drops clear. At this temperature and with healthy yeast, fermentation should be complete in about one week. Allow the lees to settle and add the dry hops. You can first transfer the beer to a second vessel, if you prefer, but the dry hopping should be carried out at around 60-65 °F (16-18 °C) for about a week. Then rack to a keg and force carbonate or rack to a bottling bucket, add priming sugar, and bottle. Target a carbonation level of 2.5 volumes.

DOUBLE BLACK IPA

(5 gallons/19 L, extract with grains)
OG = 1.085 FG = 1.018
IBU = 100+ SRM = 33 ABV = 9.3%

Ingredients

- 8.75 lbs. (4 kg) pale liquid malt extract (2 °L)
- 1.1 lbs. (0.46 kg) crystal malt (40 °L)
- 14.1 oz. (0.4 kg) huskless black malt (500 °L)
- 1.7 lbs. (0.75 kg) dextrose (5 min.)
- 8.5 AAU Columbus pellet hops (60 min.)
(2 oz./57 g at 17% alpha acids)
- 1 oz. (28 g) Columbus pellet hops (0 min.)
- 1 oz. (28 g) Amarillo® pellet hops (0 min.)
- 1 oz. (28 g) Simcoe® pellet hops (0 min.)
- 2 oz. (57 g) Amarillo® pellet hops (dry hop)
- 2 oz. (57 g) Simcoe® pellet hops (dry hop)
- Irish moss (15 min.)
- White Labs WLP001 (California Ale)
or Wyeast 1056 (American Ale), or
Safale US-05 yeast
- ¾ cup corn sugar (if priming)



Step by Step

For most extract beers, I use ultra-light extract made by Alexander's (California Concentrate Company), but any fresh, high quality light color extract will work well. Always choose the freshest extract that fits the beer style. If you cannot get fresh liquid malt extract, it is better to use an appropriate amount of dried malt extract instead. My crystal malt comes from Great Western. I use Briess Blackprinz® when I need huskless black malt. Feel free to substitute any high quality malt of a similar flavor and color from a different supplier. My hops are in pellet form and come from Hop Union, Hopsteiner, or Crosby Hop Farm depending on the variety.

Mill or coarsely crack the specialty malt and place loosely in a grain bag. Avoid packing the grains too tightly in the bag, using more bags if needed. Steep the bag in about 1.5 gallons (~6 liters) of water at 165 °F (74 °C). After about 30 to 60 minutes, lift the grain bag out of the steeping liquid and rinse with warm water. Allow the bags to drip into the kettle for a few minutes while you add the malt extract. Do not squeeze the bags. 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 1.060. Stir thoroughly to help dissolve the extract and bring to a boil.

The total wort boil time is 60 minutes. Add the first hop addition once the wort starts boiling. Add Irish moss or other kettle finings and the dextrose as per the schedule. Add the second hop additions at flame out. Chill the wort to 67 °F (19 °C) and aerate thoroughly. The proper pitch rate is 3 packages of liquid yeast or 1 package of liquid yeast in a 4.5-liter (1-gallon) starter. Follow the fermentation and packaging instructions for the all-grain version.

Fresh Hop Black IPA

(5 gallons/19 L, all-grain)
OG = 1.064 FG = 1.016
IBU = 60 SRM = 30 ABV = 6.6%

Ingredients

11.5 lbs. (5.2 kg) 2-row pale malt
12 oz. (0.34 kg) Briess Midnight Wheat malt
10 oz. (0.28 kg) Briess Special Roast malt
8 oz. (0.23 kg) crystal malt (10 °L)
4 oz. (113 g) wheat malt
6.5 AAU Warrior® hops (60 min.)
(0.5 oz./14 g at 13% alpha acids)
8 AAU Cascade hops (60 min.)
(1 oz./28 g at 8% alpha acids)
5 oz. (142 g) fresh harvest Cascade hops
(0 min.)
1 tsp. Irish moss (15 min.)

White Labs WLP001 (California Ale),
Wyeast 1056 (American Ale)
or Safale US-05 yeast
¾ cup corn sugar (if priming)

Step by Step

Mash at 155 °F (68 °C) for 60 minutes, then mash off at 168 °F (75 °C) for an additional 5 minutes and collect about 6.5 gallons (24.5 L) of wort. Boil for 30 minutes without any hop additions, then boil 60 minutes with the Warrior® and first addition of Cascade hops. With 15 minutes left in the boil, add the Irish moss. Turn off your burner, and now steep the fresh Cascade hops for 5 minutes. Cool your wort, fill your fermenter and ferment at 68 °F (20 °C) until fermentation is complete. Bottle or keg as usual.

FRESH HOP BLACK IPA

(5 gallons/19 L, extract with grains)
OG = 1.064 FG = 1.016
IBU = 60 SRM = 30 ABV = 6.6%

Ingredients

6.6 lbs. (3 kg) light liquid malt extract
1 lb. (0.45 kg) light dried malt extract
12 oz. (0.34 kg) Briess Midnight Wheat malt
10 oz. (0.28 kg) Briess Special Roast malt
8 oz. (0.23 kg) crystal malt (10 °L)
4 oz. (113 g) wheat malt
6.5 AAU Warrior® hops (60 min.)
(0.5 oz./14 g at 13% alpha acids)
8 AAU Cascade hops (60 min.)
(1 oz./28 g at 8% alpha acids)
5 oz. (142 g) fresh harvest Cascade hops
(0 min.)
1 tsp. Irish moss
White Labs WLP001 (California Ale),
Wyeast 1056 (American Ale),
or Safale US-05 yeast
¾ cup corn sugar (if priming)

Step by Step

Steep the crushed grains in approximately 2.5 gallons (9.5 L) of water at 155 °F (68 °C) for 30 minutes. Remove the grains from the wort. Bring the wort up to a boil and add the light dried malt extract. Now add the Warrior® hops, first addition of Cascade hops and boil for 60 minutes. Add the Irish moss with 15 minutes left in the boil and the 6.6 pounds (3 kg) of liquid malt extract for the last 5 minutes of the boil and stir to thoroughly mix the wort and avoid scorching the malt extract to the bottom of your kettle. At the end of your 60-minute boil, turn your heat off, and add the fresh Cascade hops. Stir the fresh hops into the beer for 5 minutes. Add the wort to about 2 gallons (7.5 L) of cold water in your sanitized fermenter, and top up to 5.25 (19.75 L) gallons. Cool the wort to 65 °F (18 °C) and add your yeast. Aerate your wort, and ferment at 68 °F

(20 °C) until fermentation is complete. Bottle or keg as usual.

Hopworks Urban Brewery Secession CDA clone

(5 gallons/19 L, all-grain)
OG = 1.064 FG = 1.014
IBU = 70 SRM = 29 ABV = 6.8%

Ingredients

11.5 lbs. (5.2 kg) Pilsner malt
12 oz. (0.34 kg) crystal malt (60 °L)
8 oz. (0.23 kg) black barley malt (530 °L)
4 oz. (113 g) chocolate malt (350 °L)
8.4 AAU Magnum hops (60 min.)
(0.6 oz./17 g at 14% alpha acids)
6.5 AAU Mt. Hood hops (30 min.)
(1 oz./28 g at 6.5% alpha acids)
3 AAU Amarillo® hops (30 min.)
(0.3 oz./8.5 g at 10% alpha acids)
3.8 AAU Simcoe® hops (30 min.)
(0.3 oz./8.5 g at 12.8% alpha acids)
0.75 oz. (21 g) Cascade hops (0 min.)
0.4 oz. (11 g) Amarillo® hop (0 min.)
0.4 oz. (11 g) Simcoe® hop (0 min.)
0.5 oz. (14 g) Amarillo® hops (dry hop)
0.5 oz. (14 g) Cascade hops (dry hop)
0.3 oz. (8.5 g) Simcoe® hops (dry hop)
½ tsp. yeast nutrient (15 min.)
½ tsp. Irish moss (30 min.)
White Labs WLP013 (London Ale) or
Wyeast 1318 (London Ale III) yeast
¾ cup corn sugar (if priming)

Step by Step

This is a single step infusion mash. Mix the crushed grains with 17 quarts (16 L) of 163 °F (73 °C) water to stabilize at 152 °F (67 °C) for 60 minutes. Sparge slowly with 170 °F (77 °C) water. Collect approximately 6.5 gallons (23 L) of wort runoff to boil for a total of 90 minutes, adding hops and other ingredients as per the ingredient schedule. Cool the wort to 68 °F (20 °C). Pitch your yeast and aerate the wort heavily. Hold at that temperature until fermentation is complete. Transfer to a carboy, avoiding any splashing to prevent aerating the beer and add the dry hops. Allow the beer to condition for one week and then bottle or keg.

HOPWORKS URBAN BREWERY SECESSION CDA CLONE

(5 gallons/19 L, extract with grains)
OG = 1.064 FG = 1.014
IBU = 70 SRM = 29 ABV = 6.8%

Ingredients

6.6 lbs. (3.0 kg) Pilsen liquid malt extract
1.25 lbs. (0.57 kg) Pilsen dried malt extract



12 oz. (0.34 kg) crystal malt (60 °L)
 8 oz. (0.23 kg) black barley malt (530 °L)
 4 oz. (0.11 kg) chocolate malt (350 °L)
 8.4 AAU Magnum hops (60 min.)
 (0.6 oz./17 g at 14% alpha acids)
 6.5 AAU Mt. Hood hops (30 min.)
 (1 oz./28 g at 6.5% alpha acids)
 3 AAU Amarillo® hops (30 min.)
 (0.3 oz./8.5 g at 10% alpha acids)
 3.8 AAU Simcoe® hops (30 min.)
 (0.3 oz./8.5 g at 12.8% alpha acids)
 0.75 oz. (21 g) Cascade hops (0 min.)
 0.4 oz. (11 g) Amarillo® hop pellets (0 min.)
 0.4 oz. (11 g) Simcoe® hop pellets (0 min.)
 0.5 oz. (14 g) Amarillo® hops (dry hop)
 0.5 oz. (14 g) Cascade hops (dry hop)
 0.3 oz. (8.5 g) Simcoe® hops (dry hop)
 ½ tsp. yeast nutrient (15 min.)
 ½ tsp. Irish moss (30 min.)
 White Labs WLP013 (London Ale) or
 Wyeast 1318 (London Ale III) yeast
 ¾ cup corn sugar (if priming)

Step by Step

Steep the crushed grain in 2 gallons (7.6 L) of water at 152 °F (67 °C) for 30 minutes. Remove grains from the wort and rinse with 2 quarts (1.8 L) of hot water. Add the dried malt extract and boil for 60 minutes. While boiling, add the hops, Irish moss and yeast nutrient as per the schedule. With 15 minutes remaining in the boil add the liquid malt extract and stir until completely dissolved to avoid scorching the extract. After the boil is complete, add the wort to 2 gallons (7.6 L) of cold water in the sanitized fermenter and top off with cold water up to 5 gallons (19 L).

Cool the wort to 75 °F (24 °C). Pitch your yeast and aerate the wort heavily. Allow the beer to cool to 68 °F (20 °C). Hold at that temperature until fermentation is complete.

When primary fermentation is complete, rack beer to a carboy, avoiding any splashing to prevent aerating the beer and add the dry hops. Allow the beer to condition for one week and then bottle or keg. Allow the beer to carbonate and age for two weeks and enjoy your Secession CDA clone.

Lawson's Finest Liquids' Toast clone

(5 gallons/19 L, all-grain)
 OG = 1.059 FG = 1.013
 IBU = 70 SRM = 33 ABV = 5.9%

Ingredients

11 lbs. (5 kg) 2-row pale malt
 8 oz. (0.23 kg) toasted barley flakes
 8 oz. (0.23 kg) toasted rye flakes
 6 oz. (0.17 kg) Weyermann Carafa®
 Special III malt

6 oz. (0.17 kg) Briess Midnight Wheat
 7 AAU Magnum hops (60 min.)
 (0.5 oz./14 g at 14% alpha acids)
 11.6 AAU Columbus hops (20 min.)
 (0.75 oz./21 g at 15.5% alpha acids)
 15.5 AAU Columbus hops (0 min.)
 (1 oz./28 g at 15.5% alpha acids)
 13 AAU Chinook hops (0 min.)
 (1 oz./28 g at 13% alpha acids)
 13 AAU Simcoe® hops (0 min.)
 (1 oz./28g at 13% alpha acids)
 1.5 oz. (43 g) Columbus hops (dry hop)
 1.5 oz. (43 g) Chinook hops (dry hop)
 1.5 oz. (43 g) Simcoe® hops (dry hop)
 Wyeast 1056 (American Ale), White Labs
 WLP001 (California Ale), Safale US-05, or
 Lallemand BRY-97 yeast
 ¾ cup priming sugar (if priming)

Step by Step

If your brew shop does not stock toasted barley and rye flakes then you can toast them yourself. Before brew day begins, pre-heat your oven up to 350 °F (177 °C). Place the flaked barley and rye spread out on baking sheets. Toast the flakes for about 20 minutes shaking the sheet every couple of minutes. Use your nose as a guide to know when they are finished.

Achieve a target mash temperature of 150 °F (66 °C). Boil for 60 minutes, adding the hops as instructed. After boil is complete, begin a whirlpool in the kettle and let the knockout hops rest in the hot wort for at least 30 minutes before chilling.

Chill the wort rapidly to 68 °F (20 °C). Ferment at 68 °F (20 °C) for one week. Cool to 55 °F (13 °C) to settle yeast from beer. Dump the yeast or rack the beer to a clean, sanitized vessel. Add the dry hops and let the beer sit on the dry hops for an additional four to seven days at 55–57 °F (13–14 °C). Your beer is now ready to rack into a keg, or into bottles with priming sugar.

LAWSON'S FINEST LIQUIDS' TOAST CLONE

(5 gallons/19 L, partial mash)
 OG = 1.059 FG = 1.013
 IBU = 70 SRM = 33 ABV = 5.9%

Ingredients

6.6 lbs. (3 kg) light liquid malt extract
 2 lbs. (0.91 kg) 2-row pale malt
 8 oz. (0.23 kg) toasted barley flakes
 8 oz. (0.23 kg) toasted rye flakes
 6 oz. (0.17 kg) Weyermann Carafa®
 Special III malt
 6 oz. (0.17 kg) Briess Midnight Wheat
 7 AAU Magnum hops (60 min.)
 (0.5 oz./14 g at 14% alpha acids)
 11.6 AAU Columbus hops (20 min.)
 (0.75 oz./21 g at 15.5% alpha acids)
 15.5 AAU Columbus hops (0 min.)

(1 oz./28 g at 15.5% alpha acids)
 13 AAU Chinook hops (0 min.)
 (1 oz./28 g at 13% alpha acids)
 13 AAU Simcoe® hops (0 min.)
 (1 oz./28g at 13% alpha acids)
 1.5 oz. (43 g) Columbus hops (dry hop)
 1.5 oz. (43 g) Chinook hops (dry hop)
 1.5 oz. (43 g) Simcoe® hops (dry hop)
 Wyeast 1056 (American Ale), White
 Labs WLP001 (California Ale),
 Safale US-05, or Lallemand BRY-97 yeast
 ¾ cup priming sugar (if priming)

Step by Step

If your brew shop does not stock toasted barley and rye flakes then you can toast them yourself. Before brew day begins, pre-heat your oven up to 350 °F (177 °C). Place the flaked barley and rye spread out on baking sheets. Toast the flakes for about 20 minutes shaking the sheet every couple of minutes. Use your nose as a guide to know when they are finished.

Place crushed and flaked grains in a grain bag and add to 1 gal (3.8 L) water to achieve a mash temperature of 150 °F (66 °C) for 45 minutes. Rinse the grains with 2 qts. (1.9 L) hot water, and top off kettle to 6 gal. (23 L). Add extract off heat then bring to a boil. After boil is complete, begin a whirlpool in the kettle and let the knockout hops rest in the hot wort for at least 30 minutes before chilling.

Chill the wort rapidly to 68 °F (20 °C). Ferment at 68 °F (20 °C) for one week. Cool to 55 °F (13 °C) to settle yeast from beer. Dump the yeast or rack the beer to a clean, sanitized vessel. Add the dry hops and let the beer sit on the dry hops for an additional four to seven days at 55–57 °F (13–14 °C). Your beer is now ready to rack into a keg, or into bottles with priming sugar.

Tips for Success:

When toasting flaked grains at home the key is getting the flaked grains to a point where your entire kitchen is smelling of wonderfully toasted bread. It will add a layer of complexity to the final beer, which is a fundamental part of this impeccably-brewed black IPA. Experimenting with toasting the flaked grains is probably a good idea to get this process down pat before brew day. Do this by trying out different toasting levels and tasting them in small test batches to find the color and corresponding flavor that tastes best. If you find that your flaked grains make your mash a little gummy, try adding a handful of rice hulls to break things up a bit.

Also make sure to use Carafa® Special, or similarly de-husked malted barley, as this is the de-husked version of Weyermann's Carafa® malt. Using de-husked malts re-



duces astringency in the beer, which is common when brewing with highly-roasted grains. This is a key to producing the dark color of the beer without also getting the bite found in other darker beers.

Don't skimp on the hops when brewing a black IPA. A common mantra is to hop a black IPA like it were an imperial IPA. This will allow the hop characteristics to shine above the roasted aspects of this beer style.

The Alchemist, Ninkasi, and Stone Brewing Co.'s More Brown Than Black IPA clone

(5 gallons/19 L, all-grain)
OG = 1.066 FG = 1.016
IBU = 100+ SRM = 19 ABV = 6.9%

Ingredients

12 lbs. (5.4 kg) Maris Otter pale ale malt
1 lb. (0.45 kg) light Munich malt
5.6 oz. (159 g) Carafa® Special III (dehusked) malt (525 °L)
4.6 oz. (130 g) Carahell® malt (9 °L)
0.34 oz. (10 mL) CO₂ extracted hop extract (~100 IBUs)
1.9 oz. (55 g) Delta hops (0 min.)
1.9 oz. (55 g) Nelson Sauvin hops (0 min.)
1.9 oz. (55 g) Citra® hops (dry hop)
1.9 oz. (55 g) Galaxy hops (dry hop)
White Labs WLP090 (San Diego Super) yeast (2.75 qts./2.75 L yeast starter)
¼ cup corn sugar (if priming)

Step by Step

You will need 4.25 gallons (16 L) of strike water. Infusion mash at 152 °F (67 °C) for 60 minutes, then raise temperature to 165 °F (74 °C) for mash off. Recirculate wort, then run off and sparge to yield about 6.5 gallons (25 L) of wort. Use sparge water hot enough to maintain grain bed temperature at around 170 °F (77 °C), but not over. Boil wort for 90 minutes, adding hops at times indicated. Chill wort and transfer to fermenter. Aerate well and pitch sediment from yeast starter. Ferment at 68 °F (20 °C). At end of fermentation, dry hop and hold warm for three days, then chill to 34 °F (1.1 °C) and age for a week.

THE ALCHEMIST, NINKASI, AND STONE BREWING CO.'S MORE BROWN THAN BLACK IPA CLONE

(5 gallons/19 L, partial mash)
OG = 1.066 FG = 1.016
IBU = 100+ SRM = 19 ABV = 6.9%

Ingredients

3 lbs. (1.36 kg) Maris Otter pale ale malt
1 lb. (0.45 kg) light Munich malt
5.6 oz. (159 g) Carafa® Special III (dehusked) malt (525 °L)
4.6 oz. (130 g) Carahell® malt (9 °L)
6 lbs. (2.7 kg) Maris Otter liquid malt extract
0.34 oz. (10 mL) CO₂ extracted hop extract (~100 IBUs)
1.9 oz. (55 g) Delta hops (0 min.)
1.9 oz. (55 g) Nelson Sauvin hops (0 min.)
1.9 oz. (55 g) Citra® hops (dry hop)
1.9 oz. (55 g) Galaxy hops (dry hop)
White Labs WLP090 (San Diego Super) yeast (2.75 qts./2.75 L yeast starter)
¼ cup corn sugar (if priming)

Step by Step

Mash grains at 152 °F (67 °C) for 60 minutes. (One option is to put the 4 lbs./1.8 kg of grain in a grain bag and place the bag in a 2-gallon/7.6-L insulated beverage cooler.) Collect wort and sparge grains with hot water (~190 °F/88 °C, but don't let the temperature of the grain bed rise above 170 °F/77 °C). (If you are using the beverage cooler option, collect one cup of wort from the spigot and then add one cup of hot sparge water to the top of the cooler and repeat until you collect around 2 gallons/7.6 L of wort.) Add water to wort to make at least 3.5 gallons (13 L) of wort, stir in dried malt extract and bring to a boil. Boil for 60 minutes, adding hops at times indicated. Stir in liquid malt extract during the final 15 minutes of the boil. (Stir well to avoid scorching malt extract.) Cool wort and transfer to fermenter. Top up to 5 gallons (19 L) with cool water, aerate well and pitch yeast. Ferment at 68 °F (20 °C). Dry hop for three days.

THE ALCHEMIST, NINKASI, AND STONE BREWING CO.'S MORE BROWN THAN BLACK IPA CLONE

(5 gallons/19 L, extract with grains)
OG = 1.066 FG = 1.016
IBU = 100+ SRM = 19 ABV = 6.9%

Ingredients

5.6 oz. (159 g) Carafa® Special III (dehusked) malt (525 °L)
4.6 oz. (130 g) Carahell® malt (9 °L)
2.25 lbs. (1 kg) light dried malt extract
6 lbs. (2.7 kg) Maris Otter liquid malt extract
0.34 oz. (10 mL) CO₂ extracted hop extract (~100 IBUs)
1.9 oz. (55 g) Delta hops (0 min.)
1.9 oz. (55 g) Nelson Sauvin hops (0 min.)
1.9 oz. (55 g) Citra® hops (dry hop)
1.9 oz. (55 g) Galaxy hops (dry hop)
White Labs WLP090 (San Diego Super) yeast (2.75 qts./2.75 L yeast starter)

¼ cup corn sugar (if priming)

Step by Step

Place grains in a steeping bag. In a large (at least 4 qt./4 L) kitchen pot, steep grains at 152 °F (67 °C) for 20 minutes in 2.7 qts. (2.6 L) of water. Begin heating at least 3 gallons (11 L) of water in your brewpot as the grains steep. Rinse grains with 1.5 qts. (1.4 L) of 170 °F (77 °C) water and add "grain tea" to water in brewpot. Stir in dried malt extract and bring wort to a boil. Boil for 60 minutes, adding hops at times indicated. Stir in liquid malt extract during the final 15 minutes of the boil. (Stir well to avoid scorching malt extract.) Cool wort and transfer to fermenter. Top up to 5 gallons (19 L) with cool water, aerate well and pitch yeast. Ferment at 68 °F (20 °C). Dry hop for three days.

Tips for Success:

Hop extracts are still not widely available on the homebrewing market. If you find yourself unable to source any, try substituting any neutral high-alpha hop that will get you to about 100 theoretical IBUs – for example, 1.6 oz. (45 g) of Summit™ hops, at 17.5% alpha acids (for 28 AAU total), boiled for 60 minutes. For this beer, adjust your water's chemistry to an appropriate residual alkalinity (RA) for the color and the right amount of sulfates (and sulfate to chloride ratio) for a bitter or very bitter beer. When brewing this beer, gypsum is your friend.

Oakshire Brewing Co.'s O'Dark:30 clone

(5 gallons/19 L, all-grain)
OG = 1.060 FG = 1.012
IBU = 70 SRM = 25 ABV = 6.4 %

Ingredients

10.5 lb. (4.8 kg) 2-row pale malt
1.5 lb. (0.68 kg) wheat malt
11 oz. (0.31 kg) Weyermann Carafa® II malt (425 °L)
16.4 AAU Nugget hop pellets (60 min.) (1.4 oz./40 g at 11.7% alpha acids)
2.9 AAU Cascade hop pellets (15 min.) (0.5 oz./14 g at 5.75% alpha acids)
2.9 AAU Cascade hop pellets (0 min.) (0.5 oz./14 g at 5.75% alpha acids)
0.5 oz. (14 g) Centennial hop pellets (dry hop)
0.5 oz. (14 g) Cascade hop pellets (dry hop)
¼ tsp. Irish moss (30 min.)
¼ tsp. yeast nutrient (15 min.)
White Labs WLP001 (California Ale), Wyeast 1056 (American Ale), or Safale US-05 yeast
¼ cup of corn sugar (if priming)



Step by Step

This is a single step infusion mash. Mix the crushed grains with 3.7 gallons (14 L) of 172 °F (78 °C) water to stabilize at 153 °F (67 °C) for 60 minutes. Sparge slowly with 175 °F (79 °C) water. Collect approximately 6 gallons (23 L) of wort runoff to boil for 60 minutes adding hops at the times indicated.

Cool the wort to 75 °F (24 °C). Pitch your yeast and aerate the wort heavily. Allow the beer to cool to 68 °F (20 °C). Hold at that temperature until fermentation is complete. Transfer to a carboy, avoiding any splashing to prevent aerating the beer and add the Centennial and Cascade dry hops. Allow the beer to condition for one week and then bottle or keg. Allow the beer to carbonate and age for two weeks and enjoy your O'Dark:30 clone.

OAKSHIRE BREWING CO.'S O'DARK:30 CLONE

(5 gallons/19 L, partial mash)

OG = 1.060 FG = 1.012

IBU = 70 SRM = 25 ABV = 6.4 %

Ingredients

6.6 lbs. (3 kg) Coopers light, unhopped, malt extract
12 oz. (0.34 kg) dried malt extract
1.5 lb. (0.68 kg) 2-row pale malt
1.5 lb. (0.68 kg) wheat malt
11 oz. (0.31 kg) Weyermann Carafa® I malt (425 °L)
18.7 AAU Nugget hop pellets (60 min.) (1.6 oz./45 g at 11.7% alpha acids)
3.5 AAU Cascade hop pellets (15 min.) (0.6 oz./17 g at 5.75% alpha acids)
2.9 AAU Cascade hop pellets (0 min.) (0.5 oz./14 g at 5.75% alpha acids)
0.5 oz. (14 g) Centennial hop pellets (dry hop)
0.5 oz. (14 g) Cascade hop pellets (dry hop)
½ tsp. yeast nutrient (15 min.)
½ tsp. Irish moss (30 min.)
White Labs WLP001 (California Ale), Wyeast 1056 (American Ale), or Safale US-05 yeast
¾ cup of corn sugar (if priming)

Step by Step

Steep the crushed grain in 2 gallons (7.6 L) of water at 153 °F (67 °C) for 30 minutes. Remove grains from the wort and rinse with 2 quarts (1.8 L) of hot water. Add the malt extracts and boil for 60 minutes. While boiling, add the hops, Irish moss and yeast nutrient as per the schedule. Now add the wort to 2 gallons (7.6 L) of cold water and top off with cold water up to 5 gallons (19 L).

Cool the wort to 75 °F (24 °C). Pitch your yeast and aerate the wort heavily. Allow the beer to cool to 68 °F (20 °C). Hold at that temperature until fermentation is complete.

Transfer to a carboy, avoiding any splashing to prevent aerating the beer and add the Centennial and Cascade dry hops. Allow the beer to condition for one week and then bottle or keg. Allow the beer to carbonate and age for two weeks and enjoy your O'Dark:30 clone.

Samuel Adams Dark Depths Baltic IPA clone

(5 gallons/19 L, all-grain)

OG = 1.079 FG = 1.020

IBU = 55 SRM = 30 ABV = 8.3%

Ingredients

8.1 lbs. (3.7 kg) 2-row pale malt (2 °L)
6.9 lbs. (3.1 kg) Munich malt (9 °L)
1.8 lbs. (0.82 kg) caramel malt (60 °L)
0.5 lbs. (0.23 kg) Weyermann Carafa® I malt (350 °L)
9.5 AAU Zeus pellet hops (90 min.) (0.6 oz./17 g at 15.8% alpha acids)
2 AAU Saaz pellet hops (15 min.) (0.6 oz./17 g at 3.4% alpha acids)
2.8 AAU Ahtanum™ pellet hops (15 min.) (0.6 oz./17 g at 4.7% alpha acids)
2.8 AAU Ahtanum™ pellet hops (5 min.) (0.6 oz./17 g at 4.7% alpha acids)
5.3 AAU Simcoe® pellet hops (5 min.) (0.4 oz./11 g at 13.2% alpha acids)
½ tsp. yeast nutrient (15 min.)
1 oz. (28 g) Simcoe® pellet hops (dry hop)
0.5 oz. (14 g) Topaz pellet hops (dry hop)
0.5 oz. (14 g) East Kent Golding pellet hops (dry hop)
White Labs WLP830 (German Lager), Wyeast 2206 (Bavarian Lager), or Mangrove Jack Bohemian Lager yeast (~ 6 qts./5.7 L starter or 2.5 sachets dry yeast)
¾ cup corn sugar (if priming)

Step by Step

This is a single infusion mash. Mix the crushed grains with 6 gallons (23 L) of 167 °F (75 °C) strike water to stabilize the mash at 153 °F (67 °C). Hold at this temperature for 45 minutes. Vorlauf for 15 minutes then begin sparge. Run off into kettle to achieve volume and pre-boil gravity of 1.058 SG, about 6.8 gallons (26 L). Boil for 90 minutes, adding hops and yeast nutrients according to the ingredients list. Turn off the heat, stir the wort to create a whirlpool and let settle for 15 minutes. Cool the wort to 53–55 °F (12–13 °C). Aerate the wort with filtered air or pure O₂ and pitch yeast. Ferment at 57 °F (14 °C) for two weeks or until signs of fermentation slow. Rack to a secondary and lager for four to six weeks at 40 °F (5 °C). Add the dry hops for the final

two weeks of the lagering phase. If diacetyl is apparent during racking, give the beer two days at 70 °F (21 °C) to allow the yeast to process any diacetyl before racking to the secondary vessel. After the lager period is complete, bottle or keg, carbonating to 2.1 volumes of CO₂.

SAMUEL ADAMS DARK DEPTHS BALTIC IPA CLONE

(5 gallons/19 L, extract with grains)

OG = 1.079 FG = 1.020

IBU = 55 SRM = 30 ABV = 8.3%

Ingredients

9.9 lbs. (4.5 kg) Munich liquid malt extract
1.8 lbs. (0.82 kg) caramel malt (60 °L)
0.5 lbs. (0.23 kg) Weyermann Carafa® I malt (350 °L)
9.5 AAU Zeus pellet hops (90 min.) (0.6 oz./17 g at 15.8% alpha acids)
2 AAU Saaz pellet hops (15 min.) (0.6 oz./17 g at 3.4% alpha acids)
2.8 AAU Ahtanum™ pellet hops (15 min.) (0.6 oz./17 g at 4.7% alpha acids)
2.8 AAU Ahtanum™ pellet hops (5 min.) (0.6 oz./17 g at 4.7% alpha acids)
5.3 AAU Simcoe® pellet hops (5 min.) (0.4 oz./11 g at 13.2% alpha acids)
½ tsp. yeast nutrient (15 min.)
1 oz. (28 g) Simcoe® pellet hops (dry hop)
0.5 oz. (14 g) Topaz pellet hops (dry hop)
0.5 oz. (14 g) East Kent Golding pellet hops (dry hop)
White Labs WLP830 (German Lager), Wyeast 2206 (Bavarian Lager) or Mangrove Jack Bohemian Lager yeast (~ 6 qts./5.7 L starter or 2.5 sachets dry yeast)
¾ cup corn sugar (if priming)

Step by Step

Place crushed specialty grains in a muslin bag and steep in 1 gallon (3.8 L) water at 150–160 °F (66–71 °C) for 20 minutes. Remove the grain bag and slowly wash the grains with 2 qts. (1.9 L) hot water. Transfer wort to brew kettle and top off to make 6.5 gallons (25 L) in your brew kettle. Just before the water reaches boil, remove from heat and stir in the malt extract until all extract is dissolved. Your pre-boil gravity should be around 1.058 SG. Boil for 90 minutes, adding hops and yeast nutrients according to the ingredients list. Turn off the heat, give the wort a stir for a minute to create a whirlpool and let that settle for about 15 minutes. Cool the wort down to about 53–55 °F (12–13 °C). Follow the remainder of the all-grain recipe. Aerate the wort and pitch yeast. Ferment at 57 °F (14 °C) for two weeks or until signs of fermentation slow. Follow the remainder of the all-grain recipe.



Schwarzchild Black IPA

(5 gallons/19 L, all-grain)
OG = 1.063 FG = 1.015
IBU = 64 SRM = 24 ABV = 6.6%

Ingredients

9.75 lbs. (4.4 kg) Briess pale ale malt
8 oz. (0.23 kg) Briess Blackprinz® malt
8 oz. (0.23 kg) caramel malt (20 °L)
8 oz. (0.23 kg) caramel malt (60 °L)
8 oz. (0.23 kg) Briess Carapils® malt
11 oz. (0.31 kg) table sugar (10 min.)
11.2 AAU Amarillo® hops (60 min.)
(1.4 oz./40 g at 8% alpha acids)
5.3 AAU Amarillo® hops (10 min.)
(0.66 oz./19 g at 8% alpha acids)
3.3 AAU Cascade hops (10 min.)
(0.66 oz./19 g at 5% alpha acids)
6.6 AAU Centennial hops (10 min.)
(0.66 oz./19 g at 10% alpha acids)
5.3 AAU Amarillo® hops (1 min.)
(0.66 oz./19 g at 8% alpha acids)
3.3 AAU Cascade hops (1 min.)
(0.66 oz./19 g at 5% alpha acids)
6.6 AAU Centennial hops (1 min.)
(0.66 oz./19 g at 10% alpha acids)
0.66 oz. (19 g) Amarillo® hops (dry hop)
0.66 oz. (19 g) Cascade hops (dry hop)
0.66 oz. (19 g) Centennial hops (dry hop)
White Labs WLP060 (American Ale Yeast Blend)
¾ cup corn sugar (if priming)

Step by Step

Mash grains at 154–156 °F (68–69 °C) for 45 minutes. Raise mash bed to 170 °F (77 °C) for mash out then begin to laut. Bring to a boil for 60 minutes, adding hops as indicated in the ingredients list. Add the table sugar with 15 minutes left in the boil. Cool to 66 °F (19 °C), oxygenate wort and pitch yeast. Ferment for 14 days at 66 °F (19 °C). Transfer to secondary for 14 days and add dry hops. Keg or bottle with priming sugar as normal.

SCHWARZCHILD BLACK IPA

(5 gallons/19 L, partial mash)
OG = 1.063 FG = 1.015
IBU = 64 SRM = 24 ABV = 6.6%

Ingredients

1 lb. (0.45 kg) Briess pale ale malt
8 oz. (0.23 kg) Briess Blackprinz® malt
8 oz. (0.23 kg) caramel malt (20 °L)
8 oz. (0.23 kg) caramel malt (60 °L)
8 oz. (0.23 kg) Briess Carapils® malt
3 lbs. 14 oz. (1.75 kg) Briess CBW® Golden Light liquid malt extract
2 lbs. (0.91 kg) CBW® Golden Light dried

malt extract
11 oz. (0.31 kg) table sugar (10 min.)
11.2 AAU Amarillo® hops (60 min.)
(1.4 oz./40 g at 8% alpha acids)
5.3 AAU Amarillo® hops (10 min.)
(0.66 oz./19 g at 8% alpha acids)
3.3 AAU Cascade hops (10 min.)
(0.66 oz./19 g at 5% alpha acids)
6.6 AAU Centennial hops (10 min.)
(0.66 oz./19 g at 10% alpha acids)
5.3 AAU Amarillo® hops (1 min.)
(0.66 oz./19 g at 8% alpha acids)
3.3 AAU Cascade hops (1 min.)
(0.66 oz./19 g at 5% alpha acids)
6.6 AAU Centennial hops (1 min.)
(0.66 oz./19 g at 10% alpha acids)
0.66 oz. (19 g) Amarillo® hops (dry hop)
0.66 oz. (19 g) Cascade hops (dry hop)
0.66 oz. (19 g) Centennial hops (dry hop)
White Labs WLP060 (American Ale Yeast Blend)
¾ cup corn sugar (if priming)

Step by Step

Put all of the crushed grains in a large steeping bag and steep in 4.1 qts. (3.9 L) of water at 154–156 °F (68–69 °C) for 45 minutes. Heat to 170 °F (77 °C). Lift bag into a colander over brewpot and rinse with 2 qts. (2 L) of 170 °F (77 °C) water. Add water to make at least 3 gallons (11 L) of wort. Boil, adding dried malt extract at beginning and hops at times indicated. Stir in liquid malt extract and table sugar during last 15 minutes of the boil. Cool to 66 °F (19 °C), transfer to fermenter and top up to 5 gallons (19 L). Oxygenate wort and pitch yeast. Ferment for 14 days at 66 °F (19 °C). Dry hop in secondary for 14 days. Keg or bottle with priming sugar as normal.

Smuttynose Brewing Co.'s Short Batch #12 "Noonan" clone

(5 gallons/19 L, all-grain)
OG = 1.061 FG = 1.013
IBU = 75 SRM = 38 ABV = 6.5%

Ingredients

8.5 lbs. (3.9 kg) 2-row pale malt
2 lbs. (0.68 kg) British pale ale malt
1 lb. (0.45 kg) Carafa® II malt (450 °L)
12 oz. (0.34 kg) Belgian aromatic malt (25 °L)
10 oz. (0.28 kg) crystal malt (60 °L)
4 oz. (0.11 kg) black malt (600 °L)
10.5 AAU Magnum hops (90 min.)
(0.75 oz./21 g at 14% alpha acids)
7.5 AAU Columbus hops (30 min.)
(0.5 oz./14 g at 15% alpha acids)
3.75 AAU Columbus hops (20 min.)
(0.25 oz./7 g at 15% alpha acids)

3.75 AAU Columbus hops (10 min.)
(0.25 oz./7 g at 15% alpha acids)
7.5 AAU Columbus hops (0 min.)
(0.5 oz./14 g at 15% alpha acids)
8 AAU Bravo hops (0 min.)
(0.5 oz./14 g at 16% alpha acids)
4 AAU Sterling hops (0 min.)
(0.5 oz./14 g at 8% alpha acids)
1 oz. (28 g) Glacier hops (dry hop)
1 oz. (28 g) Nugget hops (dry hop)
¼ tsp. Irish moss (30 min.)
¼ tsp. yeast nutrient (15 min.)
White Labs WLP001 (California Ale) or
Wyeast 1056 (American Ale) yeast
¾ cup corn sugar (if priming)

Step by Step

This is a single step infusion. Mix the milled grains with 4.25 gallons (16.1 L) of 174 °F (79 °C) water to stabilize at 154 °F (68 °C) for 60 minutes. Add 1 lb. (0.45 kg) of milled Carafa® II malt to the top of the mash. Sparge slowly with 175 °F (79 °C) water. Collect approximately 6.5 gallons (25 L) of wort runoff to boil for 90 minutes. Add the hops, yeast nutrients and Irish moss at the times indicated.

Cool the wort to 75 °F (24 °C). Pitch your yeast and aerate the wort heavily. Allow the beer to cool to 68 °F (20 °C). Hold at that temperature until fermentation is complete. Transfer to a carboy, avoiding any splashing to prevent aerating the beer and add the Nugget and Glacier dry hops for seven days. Allow the beer to condition for one week and then bottle or keg. Allow the beer to carbonate and age for two weeks.

SMUTTYNOSE BREWING CO.'S SHORT BATCH #12 "NOONAN" CLONE

(5 gallons/19 L, extract with grains)
OG = 1.061 FG = 1.013
IBU = 75 SRM = 38 ABV = 6.5%

Ingredients

6.6 lbs. (3 kg) Briess light, unhoppled, liquid malt extract
1.5 lb. (0.68 kg) pale ale malt
1 lb. (0.45 kg) Carafa® II malt (450 °L)
12 oz. (0.34 kg) Belgian aromatic malt (25 °L)
10 oz. (0.28 kg) crystal malt (60 °L)
4 oz. (0.11 kg) black malt (600 °L)
11.3 AAU Magnum hops (75 min.)
(0.8 oz./23 g at 14% alpha acids)
7.5 AAU Columbus hops (30 min.)
(0.5 oz./14 g at 15% alpha acids)
3.75 AAU Columbus hops (20 min.)
(0.25 oz./7 g at 15% alpha acids)
3.75 AAU Columbus hops (10 min.)
(0.25 oz./7 g at 15% alpha acids)
7.5 AAU Columbus hops (0 min.)
(0.5 oz./14 g at 15% alpha acids)



- 8 AAU Bravo hops (0 min.)
(0.5 oz./14 g at 16% alpha acids)
- 4 AAU Sterling hops (0 min.)
(0.5 oz./14 g at 8% alpha acids)
- 1 oz. (28 g) Glacier hops (dry hop)
- 1 oz. (28 g) Nugget hops (dry hop)
- ½ tsp. Irish moss (30 min.)
- ½ tsp. yeast nutrient (15 min.)
- White Labs WLP001 (California Ale) or
Wyeast 1056 (American Ale) yeast
- ¾ cup corn sugar (if priming)

Step by Step

Steep the milled grain in 2 gallons (7.6 L) of water at 154 °F (68 °C) for 30 minutes. Remove grains from the wort and rinse with 2 quarts (1.8 L) of hot water. In a separate saucepan combine 1 lb. (0.45 kg) milled Carafa® II malt with 1.5 quarts (1.4 L) water at 130 °F (54 °C) for three minutes. Remove grain and add this black liquid and the liquid malt extract to the wort and boil for 75 minutes. While boiling, add the hops, Irish moss and yeast nutrient as per the schedule. Now add the wort to 2 gallons (7.6 L) of cold water in a fermenter and top off with cold water up to 5 gallons (19 L). Cool the wort to 75 °F (24 °C). Pitch your yeast and aerate the wort heavily. Allow the beer to cool to 68 °F (20 °C). Hold at that temperature until fermentation is complete. Transfer to a carboy, avoiding any splashing to prevent aerating the beer and add the Nugget and Glacier dry hops for seven days. Allow the beer to condition for one week and then bottle or keg. Allow the beer to carbonate and age for two weeks.

Widmer Brewing Co.'s W-IO Pitch Black IPA clone

(5 gallons/19 L, all-grain)
OG = 1.064 FG = 1.014
IBU = 65 SRM = 26 ABV = 6.8%

Ingredients

- 10.5 lbs. (4.8 kg) 2-row pale malt
- 1.5 lbs. (0.68 kg) caramel malt (10 °L)
- 12 oz. (0.34 kg) Weyermann Carafa®
Special II (dehusked) malt (450 °L)
- 10 oz. (0.28 kg) Briess special roast
malt (50 °L)
- 16 AAU Warrior® hops (75 min.)
(1 oz./28 g at 16% alpha acids)
- 1.5 AAU Cascade hops (2 min.)
(0.25 oz./7 g at 5.8% alpha acids)
- 12 AAU Warrior® hops (2 min.)
(0.75 oz./21 g at 16% alpha acids)
- 0.25 oz. (7 g) Warrior® hops (dry hop)
- 0.5 oz. (14 g) Cascade hops (dry hop)
- ½ tsp. Irish moss (30 min.)
- ½ tsp. yeast nutrient (15 min.)

- White Labs WLP001 (California Ale) or
Wyeast 1056 (American Ale) or
Safale US-05 yeast
- ¾ cup corn sugar (if priming)

Step by Step

This is a single step infusion mash. Mix the crushed grains with 4 gallons (15 L) of 161 °F (72 °C) water to stabilize at 150 °F (66 °C) for 60 minutes. Sparge slowly with 170 °F (77 °C) water. Collect approximately 6.5 gallons (25 L) of wort runoff to boil for 75 minutes. While boiling, add the hops, Irish moss and yeast nutrient as per the schedule. Cool the wort to 75 °F (24 °C). Pitch your yeast and aerate the wort heavily. Allow the beer to cool to 68 °F (20 °C). Hold at that temperature until fermentation is complete. Transfer to a carboy, avoiding any splashing to prevent aerating the beer and add the Warrior® and Cascade dry hops for seven days. Allow the beer to condition for one week and then bottle or keg. Allow the beer to carbonate and age for two weeks and enjoy.

WIDMER BREWING CO.'S W-IO PITCH BLACK IPA CLONE

(5 gallons/19 L, extract with grains)
OG = 1.064 FG = 1.014
IBU = 65 SRM = 26 ABV = 6.8%

Ingredients

- 7.75 lbs. (3.5 kg) Briess light, unhopped,
liquid malt extract
- 1.5 lbs. (0.68 kg) caramel malt (10 °L)
- 12 oz. (0.34 kg) Weyermann Carafa®
Special II (dehusked) malt (450 °L)
- 10 oz. (0.28 kg) Briess Special Roast
malt (50 °L)
- 20 AAU Warrior® hops (60 min.)
(1.25 oz./35 g at 16% alpha acids)
- 1.4 AAU Cascade hops (2 min.)
(0.25 oz./7 g at 5.8% alpha acids)
- 12 AAU Warrior® hops (2 min.)
(0.75 oz./21 g at 16% alpha acids)
- 0.25 oz. (7 g) Warrior® hops (dry hop)
- 0.5 oz. (14 g) Cascade hops (dry hop)
- ½ tsp. Irish moss (30 min.)
- ½ tsp. yeast nutrient (15 min.)
- White Labs WLP001 (California Ale),
Wyeast 1056 (American Ale), or
Safale US-05 yeast
- ¾ cup corn sugar (if priming)

Step by Step

Steep the crushed grain in 2 gallons (7.6 L) of water at 150 °F (66 °C) for 30 minutes. Remove grains from the wort and rinse with 2 quarts (1.8 L) of hot water. Add the liquid malt extract and boil for 75 minutes. While boiling, add the hops, Irish moss and yeast nutrient as per the schedule. During the boil,

use this time to thoroughly sanitize a fermenter. Now add the wort to 2 gallons (7.6 L) of cold water in the sanitized fermenter and top off with cold water up to 5 gallons (19 L). Cool the wort to 75 °F (24 °C). Pitch your yeast and aerate the wort heavily. Allow the beer to cool to 68 °F (20 °C). Hold at that temperature until fermentation is complete. Transfer to a carboy, avoiding any splashing to prevent aerating the beer and add the dry hops. Allow the beer condition for one week and then bottle or keg. Allow the beer to carbonate and age for two weeks

BRETT IPA

Cairn 100% Brett IPA

(5 gallons/19 L, all-grain)
OG = 1.057 FG = 1.010
IBU = 62 SRM = 5 ABV = 6.2%

Ingredients

- 7.25 lbs. (3.3 kg) 2-row pale malt
- 3.5 lbs. (1.6 kg) white wheat malt
- 1 lb. (0.45 kg) Weyermann Carahell® malt
- 4.3 AAU Northern Brewer hops (60 min.)
(0.5 oz./14 g at 8.5% alpha acids)
- 28 AAU Columbus hops (0 min.)
(2 oz./57 g at 14% alpha acids)
- 10 AAU Centennial hops (0 min.)
(1 oz./28 g at 10% alpha acids)
- 2 oz. (57 g) Centennial hops (dry hop)
- 2 oz. (57 g) Citra® hops (dry hop)
- ½ tsp. yeast nutrient (15 min.)
- 1 tsp. Irish moss (15 min.)
- White Labs WLP648 (*Brettanomyces
bruxellensis* Trois Vrai) yeast
- ¾ cup corn sugar (if priming)

Step by Step

Mill the grains and dough-in with 15 qts. (14 L) water, for a mash ratio of about 1.25 quarts per pound of grain (2.6 L/kg). Target a mash temperature of 155 °F (68 °C) and hold for 60 minutes. Sparge with 170 °F (77 °C) water. Collect approximately 6.3 gallons (23.8 L) of wort runoff and bring to boil. Add bittering hops and boil for 60 minutes. Turn off heat, then add the 0-minute hop additions and let steep for half an hour before you begin cooling the wort. This “whirlpool” hop addition can be calculated as somewhere between a 10–5 minute addition for alpha acid utilization.

Cool the wort to 72 °F (22 °C), then top off with cold, filtered water to reach 5 gallons (19 L). Pitch a 2 qt. (2 L) yeast starter and ferment at 68–72 °F (20–22 °C). Fermentation should take two to three weeks, but keep an eye on your gravity. Following



fermentation, dry hop for one week, then bottle or keg.

CAIRN 100% BRETT IPA

(5 gallons/19 L, extract with grains)
OG = 1.060 FG = 1.013
IBU = 60 SRM = 6 ABV = 6.2%

Ingredients

6.6 lbs. (3.0 kg) Pilsen light liquid malt extract
1 lb. (0.45 kg) wheat dried malt extract
12 oz. (0.34 kg) crystal malt (20 °L)
4.3 AAU Northern Brewer hops (60 min.) (0.5 oz./14 g at 8.5% alpha acids)
28 AAU Columbus hops (0 min.) (2 oz./57 g at 14% alpha acids)
10 AAU Centennial hops (0 min.) (1 oz./28 g at 10% alpha acids)
2 oz. (57 g) Centennial hops (dry hop)
2 oz. (57 g) Citra® hops (dry hop)
½ tsp. yeast nutrient (15 min.)
1 tsp. Irish moss (15 min.)
White Labs WLP648 (*Brettanomyces bruxellensis* Trois Vrai) yeast
¾ cup corn sugar (if priming)

Step by Step

Steep the crushed grain in 2 gallons (7.6 L) of water as it warms until a temperature of about 150 °F (65.5 °C) is reached, or approximately 20 minutes. Remove grains from the wort and rinse with 4 quarts (3.8 L) of hot water. Add the liquid to reach a total of 3 gallons (11.3 L) and bring to boil. Turn off heat, add malt extract, and stir until completely dissolved. Return to heat and add 60 minute hop addition, then continue boil for 60 minutes. At flameout, add final hop additions and turn off heat. Let hops steep (whirlpool) for 30 minutes before cooling. This “whirlpool” hop addition can be calculated as somewhere between a 10–5 minute addition for alpha acid utilization.

Cool the wort to 72 °F (22 °C), then top off with cold, filtered water to reach 5 gallons (19 L). Pitch 2 qts (2 L) yeast starter and ferment at 68–72 °F (20–22 °C). Fermentation should take two to three weeks, but keep an eye on your gravity. Following fermentation, dry hop for one week, then bottle or keg.

Modern Times Southern Lands IPA clone

(5 gallons/19 L, all-grain)
OG = 1.065 FG = 1.008
IBU = 60 SRM = 5 ABV = 7.8%

Ingredients

10.7 lbs. (4.9 kg) 2-row pale malt

2 lbs. (0.9 kg) white wheat malt
6.4 oz. (180 g) acidulated malt
6.4 oz. (180 g) dextrin malt
2 oz. (57 g) crystal malt (60 °L)
3 mL HopShot™ extract (60 min.) (~30 IBU)
20 AAU Centennial hops (1 min.) (2 oz./57 g at 10% alpha acids)
14 AAU Calypso hops (1 min.) (1 oz./28 g at 14% alpha acid)
2 oz. (57 g) Centennial hops (dry hop)
1.5 oz. (43 g) Calypso hops (dry hop)
½ tsp. yeast nutrient (15 min.)
1 Whirlfloc tablet (5 min.)
White Labs WLP648 (*Brettanomyces bruxellensis* Trois Vrai) yeast
¾ cup corn sugar (if priming)

Step by Step

Mill the grains and dough-in with 16 qts. (15 L) water, for a mash ratio of about 1.25 quarts per pound of grain. Target a mash temperature of 156 °F (69 °C) and hold for 60 minutes. Sparge slowly with 170 °F (77 °C) water. Collect approximately 6.3 gallons (23.8 L) of wort runoff and bring to boil. Add bittering hops and boil for 60 minutes. After the boil, add the flame-out hops and whirlpool for 30 minutes before cooling. Cool the wort to room temperature, pitch yeast and ferment at 68–72 °F (20–22 °C). Dry hop for seven days before bottling or kegging.

MODERN TIMES SOUTHERN LANDS IPA CLONE

(5 gallons/19 L, extract with grains)
OG = 1.065 FG = 1.010
IBU = 60 SRM = 5 ABV = 7.4%

Ingredients

3.3 lbs. (1.5 kg) Pilsen light liquid malt extract
3 lbs. (1.4 kg) golden light dried malt extract
1.5 lb. (0.68 kg) wheat dried malt extract
4 oz. (0.11 kg) crystal malt (60 °L)
3 mL HopShot™ extract (60 min.) (~30 IBU)
20 AAU Centennial hops (1 min.) (2 oz./57 g at 10% alpha acids)
14 AAU Calypso hops (1 min.) (1 oz./28 g at 14% alpha acid)
2 oz. (57 g) Centennial hops (dry hop)
1.5 oz. (43 g) Calypso hops (dry hop)
½ tsp. yeast nutrient (15 min.)
1 Whirlfloc tablet (5 min.)
White Labs WLP648 (*Brettanomyces bruxellensis* Trois Vrai) yeast
¾ cup corn sugar (if priming)

Step by Step

Steep the crushed grains in 2 gallons (7.6 L) of water as it warms to about 150 °F (65.5 °C), or for approximately 20 minutes.

Remove grains from the wort and rinse with 4 qts. (3.8 L) of hot water. Add the liquid to reach a total of 3 gallons (11.3 L) and bring to boil. Turn off heat, add malt extract, and stir until completely dissolved. Return to heat and add 60-minute hop extract addition, then boil for 60 minutes. One minute before flameout, add final hop additions and turn off heat. Let hops steep (or whirlpool) for 30 minutes. Cool the wort to room temperature, then top off with cold, filtered water to reach 5 gallons (19 L). Pitch yeast and ferment at 68–72 °F (20–22 °C). Dry hop for seven days before bottling or kegging.

RED IPA

Amarillo Sunset Red IPA

(5 gallons/19 L, all-grain)
OG = 1.077 FG = 1.018
IBU = 85 SRM = 18 ABV = 8.1%

Ingredients

10.5 lbs. (4.8 kg) 2-row pale malt
4 lbs. (1.8 kg) Munich malt (9 °L)
1 lb. (0.45 kg) flaked oats
8 oz. (0.23 kg) crystal malt (120 °L)
8 oz. (0.23 kg) crystal malt (80 °L)
2 oz. (57 g) Weyermann Carafa® III (525 °L)
14 AAU Warrior® hop pellets (60 min.) (1 oz./28 g at 14% alpha acids)
6.5 AAU Nugget hop pellets (15 min.) (0.5 oz./14 g at 13% alpha acids)
12 AAU Amarillo® hop pellets (0 min.) (1.5 oz./43 g at 8% alpha acids)
6.5 AAU Nugget hop pellets (0 min.) (0.5 oz./14 g at 13% alpha acids)
2.5 oz. (71 g) Amarillo® hop pellets (dry hop)
Wyeast 1318 (London Ale III) or Lallemand Nottingham yeast
¾ cup corn sugar (if priming)

Step by Step

This is a single step infusion mash. Mix all the crushed grains with 5.25 gallons (20 L) of water to stabilize the mash temperature at 155 °F (68 °C) and hold for 60 minutes. Raise the mash temperature to 165 °F (74 °C) and sparge with enough 175 °F (79 °C) water to collect approximately 6 gallons (23 L) of wort. Boil the wort for 60 minutes adding the hops at the times indicated. After the boil is complete, turn off the heat and add the flameout hop addition. Whirlpool the wort and allow the hops to steep for about 20–30 minutes prior to chilling. Ferment at 66–70 °F (19–21 °C) until primary fermentation is complete. Add the dry hop additions and allow the beer to sit on



the hops for three to five days. Bottle or keg as normal.

AMARILLO SUNSET RED IPA

(5 gallons/19 L, partial mash)

OG = 1.077 FG = 1.018

IBU = 85 SRM = 18 ABV = 8.1%

Ingredients

5.5 lbs. (2.5 kg) extra light dried malt extract
 4 lbs. (1.8 kg) Munich malt (9 °L)
 1 lb. (0.45 kg) flaked oats
 8 oz. (0.23 kg) crystal malt (120 °L)
 8 oz. (0.23 kg) crystal malt (80 °L)
 2 oz. (57 g) Weyermann Carafo® III (525 °L)
 14 AAU Warrior® hop pellets (60 min.)
 (1 oz./28 g at 14% alpha acids)
 6.5 AAU Nugget hop pellets (15 min.)
 (0.5 oz./14 g at 13% alpha acids)
 12 AAU Amarillo® hop pellets (0 min.)
 (1.5 oz./43 g at 8% alpha acids)
 6.5 AAU Nugget hop pellets (0 min.)
 (0.5 oz./14 g at 13% alpha acids)
 2.5 oz. (71 g) Amarillo® hop pellets (dry hop)
 Wyeast 1318 (London Ale III) or
 Lallemand Nottingham yeast
 ⅓ cup corn sugar (if priming)

Step by Step

Place all the crushed grains in a large muslin bag with 2 gallons (7.6 L) of water to stabilize the mash temperature at 155 °F (68 °C) and hold for 60 minutes. Slowly raise the mash temperature to 165 °F (74 °C), then place the grains in a colander and slowly wash with about 1 gallon (3.8 L) of 175 °F (79 °C) water. Add the dried malt extract and stir until fully dissolved then add water until you have approximately 6 gallons (23 L) of wort. Boil the wort for 60 minutes adding the hops at the times indicated. After the boil is complete, turn off the heat and add the flameout hop addition. Whirlpool the wort and allow the hops to steep for 20–30 minutes prior to chilling. Ferment at 66–70 °F (19–21 °C) until primary fermentation is complete. Add the dry hops and allow the beer to sit on the hops for three to five days. Bottle or keg as normal.

Brunhilde India Red Ale

(5 gallons/19 L, all-grain)

OG = 1.064 FG = 1.016

IBU = 75 SRM = 15 ABV = 6.6%

Ingredients

7.5 lbs. (3.4 kg) 2-row pale malt
 5 lbs. (2.27 kg) Munich malt (10 °L)
 10 oz. (0.29 kg) caramel malt (120 °L)
 8 oz. (0.23 kg) caramel malt (40 °L)

1 oz. (28 g) black patent malt
 13 AAU Simcoe® hops (60 min.)
 (1 oz./28 g at 13% alpha acids)
 8.5 AAU Amarillo® hops (30 min.)
 (1 oz./28 g at 8.5% alpha acids)
 5.5 AAU Cascade hops (5 min.)
 (1 oz./28 g at 5.5% alpha acids)
 13 AAU Simcoe® hops (5 min.)
 (1 oz./28 g at 13% alpha acids)
 1 oz. (28 g) Amarillo® hops (dry hop)
 1 oz. (28 g) Cascade hops (dry hop)
 1 oz. (28 g) Simcoe® hops (dry hop)
 0.25 oz. (7 g) gypsum salt
 1 Servomyces tablet (10 min.)
 ½ whirlfloc tablet (5 min.)
 White Labs WLP051 (California Ale V) or
 Wyeast 1272 (American Ale II) yeast
 ⅓ cup corn sugar (if priming)

Step by Step

This is a single infusion mash. Heat 4.75 gallons (18 L) strike water to 169 °F (76 °C) to stabilize grain bed at 152 °F (67 °C) and hold for 60 minutes. Double-batch sparge with 5.1 gallons (19.3 L) in order to raise mash bed to 168 °F (76 °C). Bring to a boil and boil for 60 minutes, adding gypsum directly to the boil and the hops whirlfloc tablet as indicated in the ingredients list. Cool to 67 °F (19 °C), oxygenate wort and pitch yeast. Ferment for 10 days at 67 °F (19 °C). Once primary fermentation is complete transfer to secondary, add dry hops and wait seven days. Bottle or keg as normal.

Brunhilde India Red Ale

(5 gallons/19 L, extract with grains)

OG = 1.064 FG = 1.016

IBU = 75 SRM = 15 ABV = 6.6%

Ingredients

6.6 lbs. (3 kg) Munich liquid malt extract
 1.25 lbs. (0.57 kg) extra light dried malt extract
 10 oz. (0.29 kg) caramel malt (120 °L)
 8 oz. (0.23 kg) caramel malt (40 °L)
 1 oz. (28 g) black patent malt
 13 AAU Simcoe® hops (60 min.)
 (1 oz./28 g at 13% alpha acids)
 8.5 AAU Amarillo® hops (30 min.)
 (1 oz./28 g at 8.5% alpha acids)
 5.5 AAU Cascade hops (5 min.)
 (1 oz./28 g at 5.5% alpha acids)
 13 AAU Simcoe® hops (5 min.)
 (1 oz./28 g at 13% alpha acids)
 1 oz. (28 g) Amarillo® hops (dry hop)
 1 oz. (28 g) Cascade hops (dry hop)
 1 oz. (28 g) Simcoe® hops (dry hop)
 0.25 oz. (7 g) gypsum salt
 1 Servomyces tablet (10 min.)
 ½ whirlfloc tablet (5 min.)
 White Labs WLP051 (California Ale V) or
 Wyeast 1272 (American Ale II) yeast
 ⅓ cup corn sugar (if priming)

Step by Step

Place the crushed grains in a large steeping bag. Steep in 1 gallon (3.8 L) water at 170 °F (77 °C) for 15 minutes. Lift bag into a colander over brewpot and rinse with 2 qts. (2 L) of 170 °F (77 °C) water. Add water to make at least 3 gallons (11 L) of wort (more if your brewpot can hold the volume). Bring to a boil, adding dried malt extract being careful not to scorch it and boil for 60 minutes. Add gypsum directly to the boil and the hops and whirlfloc tablet as indicated in the ingredients list. With 15 minutes remaining add the liquid malt extract. Cool to 67 °F (19 °C), transfer to a fermenter and top off to 5 gallons (19 L). Oxygenate the wort and pitch yeast. Ferment for 10 days at 67 °F (19 °C). Once primary fermentation is complete transfer to secondary, add dry hops and wait seven days. Bottle or keg as normal.

Leaf Peeper Imperial Red

(5 gallons/19 L, all-grain)

OG = 1.072 FG = 1.014

IBU = 77 SRM = 15 ABV = 7.6%

Ingredients

12 lbs. (5.4 kg) 2-row pale malt
 2 lbs. (0.91 kg) Best Malz Red X malt (12 °L)
 (or Munich malt if unavailable)
 1 lb. (0.45 kg) Simpsons dark crystal malt (75 °L)
 2 oz. (57 g) Briess Midnight Wheat malt
 13.2 AAU Bravo hops (60 min.)
 (0.8 oz./23 g at 16.5% alpha acids)
 14 AAU Chinook hops (0 min.)
 (1 oz./28 g at 14% alpha acids)
 4.8 AAU Centennial hops (0 min.)
 (0.5 oz./14 g at 9.5% alpha acids)
 6.6 AAU Columbus hops (0 min.)
 (0.5 oz./14 g at 13.2% alpha acids)
 1.5 oz. (43 g) Chinook hops (dry hop)
 1 oz. (28 g) Centennial hops (dry hop)
 1 oz. (28 g) Citra® hops (dry hop)
 Wyeast 1272 (American Ale II),
 White Labs WLP051 (California Ale V) or
 Lallemand Nottingham yeast
 ⅓ cup corn sugar (if priming)

Step by Step

This is a single step infusion mash. Mash the grains at 156 °F (69 °C) for 40 minutes, then raise mash to 168 °F (76 °C) over 10 minutes and rest at 168 °F (76 °C) for another 10 minutes. Sparge with 175 °F (79 °C) water. Collect 7 gallons (26.5 L) of wort in boil kettle. Total boil time is 60 minutes. Add the Bravo hops as wort comes to a boil. Once the boil is complete, turn off heat and add the final hop addition. Give the wort a long stir to create a whirlpool then let hops



steep for 20-30 minutes with the lid on the brewpot. Chill the wort to 65 °F (18 °C). Aerate the wort and pitch the rehydrated yeast. Ferment at 68 °F (20 °C) for about seven days or until primary fermentation has died down. Add dry hops and leave on hops for three days if using pellets or seven to ten days if using whole leaf hops. Bottle or keg as normal.

LEAF PEEPER IMPERIAL RED

(5 gallons/19 L, partial mash)
OG = 1.072 FG = 1.014
IBU = 77 SRM = 15 ABV = 7.6%

Ingredients

8 lbs. (3.6 kg) golden light liquid malt extract
1 lb. (0.45 kg) 2-row pale malt
2 lbs. (0.91 kg) Best Malz Red X malt (12 °L) (or Munich malt if unavailable)
1 lb. (0.45 kg) Simpsons dark crystal malt (75 °L)
2 oz. (57 g) Briess Midnight Wheat malt
13.2 AAU Bravo hops (60 min.)
(0.8 oz./23 g at 16.5% alpha acids)
14 AAU Chinook hops (0 min.)
(1 oz./28 g at 14% alpha acids)
4.8 AAU Centennial hops (0 min.)
(0.5 oz./14 g at 9.5% alpha acids)
6.6 AAU Columbus hops (0 min.)
(0.5 oz./14 g at 13.2% alpha acids)
1.5 oz. (43 g) Chinook hops (dry hop)
1 oz. (28 g) Centennial hops (dry hop)
1 oz. (28 g) Citra® hops (dry hop)
Wyeast 1272 (American Ale II),
White Labs WLP051 (California Ale V) or
Lallemand Nottingham yeast
¾ cup corn sugar (if priming)

Step by Step

Place crushed grains in a steeping bag and soak in 1.5 gallons (5.7 L) of 156 °F (69 °C) water for 30 minutes. Remove the grain from the wort and rinse grain bag with 1 gallon (3.8 L) of 170 °F (77 °C) water. Bring 6 gallons (23L) of wort to a boil. This will be a 60-minute boil, making sure the liquid malt extract is added off heat to avoid scorching. Add the Bravo hops as wort comes to a boil. Once the boil is complete, turn off heat and add the final hop addition. Give the wort a long stir to create a whirlpool then let hops steep for about 20-30 minutes with the lid on the brewpot.

Chill the wort to 65 °F (18 °C). Aerate the wort and pitch the rehydrated yeast. Ferment at 68 °F (20 °C) for about seven days or until primary fermentation has died down. Add the dry hops and leave on hops for three days if using pellets and seven to ten days if using whole leaf hops. Bottle or keg as normal.

Tröegs Brewing Co.'s Nugget Nectar Ale clone

(5 gallons/19 L, all-grain)
OG = 1.072 FG = 1.014
IBU = 91 SRM = 9 ABV = 8%

Ingredients

11.5 lbs. (5.2 kg) Vienna malt
2 lbs. (0.91 kg) Munich malt
2 lbs. (0.91 kg) Pilsner malt
16.3 AAU Nugget hop pellets (90 min.)
(1.25 oz./35 g at 13% alpha acids)
7.5 AAU Columbus hop pellets (20 min.)
(0.5 oz./14 g at 15% alpha acids)
6.2 AAU Palisade® hop pellets (10 min.)
(0.75 oz./21 g at 8.25% alpha acids)
13 AAU Nugget hop pellets (1 min.)
(1 oz./28 g at 13% alpha acids)
21 AAU Simcoe® hop pellets (1 min.)
(1.5 oz./43 g at 14% alpha acids)
7.5 AAU Columbus hop pellets (1 min.)
(0.5 oz./14 g at 15% alpha acids)
0.25 oz. (7 g) Columbus hop pellets (dry hop)
1 oz. (28 g) Nugget hop pellets (dry hop)
1 oz. (28 g) Simcoe® hop pellets (dry hop)
½ tsp. Irish moss (30 min.)
½ tsp. yeast nutrient (15 min.)
White Labs WLP001 (California Ale),
Wyeast 1056 (American Ale), or
Safale US-05 yeast
¾ cup (150 g) corn sugar (if priming)

Step by Step

Mix the crushed grains with 5 gallons (19 L) of 172 °F (78 °C) water to stabilize at 152 °F (67 °C) for 60 minutes. Sparge with 175 °F (79 °C) water. Collect 6 gallons (23 L) of wort runoff to boil for 60 minutes. Add the hops, Irish moss and yeast nutrient as per the schedule.

Cool the wort to 75 °F (24 °C). Pitch the yeast and aerate the wort heavily. Allow the beer to cool to 68 °F (20 °C). Hold at that temperature until fermentation is complete. Transfer to a carboy, avoiding any splashing to prevent aerating the beer and add the Columbus, Nugget and Simcoe® dry hops. Condition for one week and then bottle or keg. Carbonate and age for two weeks.

TRÖEGS BREWING CO.'S NUGGET NECTAR ALE CLONE

(5 gallons/19 L, partial mash)
OG = 1.072 FG = 1.014
IBU = 91 SRM = 9 ABV = 8%

Ingredients

6.6 lbs. (3 kg) Muntons light, unhopped,
liquid malt extract
18 oz. (0.51 kg) dried malt extract

1.75 lbs. (0.79 kg) Vienna malt
0.5 lb. (0.23 kg) Munich malt
0.5 lb. (0.23 kg) Pilsner malt
19.5 AAU Nugget hop pellets (90 min.)
(1.5 oz./43 g at 13% alpha acids)
7.5 AAU Columbus hop pellets (20 min.)
(0.5 oz./14 g at 15% alpha acids)
6.2 AAU Palisade® hop pellets (10 min.)
(0.75 oz./21 g at 8.25% alpha acids)
13 AAU Nugget hop pellets (1 min.)
(1 oz./28 g at 13% alpha acids)
21 AAU Simcoe® hop pellets (1 min.)
(1.5 oz./43 g at 14% alpha acids)
7.5 AAU Columbus hop pellets (1 min.)
(0.5 oz./14 g at 15% alpha acids)
0.25 oz. (7 g) Columbus hop pellets (dry hop)
1 oz. (28 g) Nugget hop pellets (dry hop)
1 oz. (28 g) Simcoe® hop pellets (dry hop)
½ tsp. Irish moss (30 min.)
½ tsp. yeast nutrient (15 min.)
White Labs WLP001 (California Ale),
Wyeast 1056 (American Ale), or
Safale US-05 yeast
¾ cup (150 g) corn sugar (if priming)

Step by Step

Steep the crushed grain in 2 gallons (7.6 L) of water at 152 °F (66.6 °C) for 30 minutes. Remove grains from the wort and rinse with 2 quarts (2 L) of hot water. Add the liquid and dried malt extracts and boil for 60 minutes. Add the hops, Irish moss and yeast nutrient as per the schedule. Add the wort to 2 gallons (7.6 L) of cold water in a sanitized fermenter and top off with cold water up to 5 gallons (19 L).

Cool the wort to 75 °F (24 °C). Pitch the yeast and aerate the wort heavily. Allow the beer to cool to 68 °F (20 °C). Hold at that temperature until fermentation is complete. Transfer to a carboy, avoiding any splashing to prevent aerating the beer, and add the Columbus, Nugget and Simcoe® dry hops. Condition for one week and then bottle or keg. Carbonate and age for two weeks.

RYE IPA

Bear Republic Brewing Co.'s Hop Rod Rye clone

(5 gallons/19 L, all-grain)
OG = 1.072 FG = 1.017
IBU = 84 SRM = 11 ABV = 7.7%

Ingredients

9.5 lbs. (4.3 kg) 2-row pale malt
2.5 lbs. (1.1 kg) rye malt
1.25 lbs. (0.57 kg) flaked rye
1.15 lbs. (0.52 kg) Munich malt



0.63 lbs. (0.28 kg) wheat malt
 0.63 lbs. (0.28 kg) Carapils® malt
 1.75 oz. (50 g) black malt
 10.5 AAU Tomahawk® hops (60 min.)
 (0.75 oz./21 g at 14% alpha acids)
 4.7 AAU Centennial hops (30 min.)
 (0.43 oz./12 g at 11% alpha acids)
 23.8 AAU Tomahawk® hops (0 min.)
 (1.7 oz./49 g at 14% alpha acids)
 0.75 oz. (21 g) Amarillo® hops (dry hop)
 1 oz. (28 g) Centennial hops (dry hop)
 1 tsp Irish moss (15 min.)
 Wyeast 1272 (American Ale II) or
 White Labs WLP051 (California V) yeast
 ¾ cups corn sugar (if priming)

Step by Step

Mash in at 145 °F (63 °C) then ramp temperature to 152 °F (67 °C) for conversion. Mash out to 170 °F (77 °C). Boil for 90 minutes, adding hops and Irish moss at the times indicated in the ingredient list. Whirlpool the wort after the boil is complete and let it sit for 15 minutes prior to cooling. Ferment at 68 °F (20 °C).

BEAR REPUBLIC BREWING CO.'S HOP ROD RYE CLONE

(5 gallons/19 L, partial mash)
 OG = 1.072 FG = 1.017
 IBU = 84 SRM = 11 ABV = 7.7%

Ingredients

4.5 lbs. (2 kg) extra light dried malt extract
 1 lb. (0.45 kg) 2-row pale malt
 2.5 lbs. (1.1 kg) rye malt
 1.25 lbs. (0.57 kg) flaked rye
 1.15 lbs. (0.52 kg) Munich malt
 0.63 lbs. (0.28 kg) wheat malt
 0.63 lbs. (0.28 kg) Carapils® malt
 1.75 oz. (50 g) black malt
 10.5 AAU Tomahawk® hops (60 min.)
 (0.75 oz./21 g at 14% alpha acids)
 4.7 AAU Centennial hops (30 min.)
 (0.43 oz./12 g at 11% alpha acids)
 23.8 AAU Tomahawk® hops (0 min.)
 (1.7 oz./48 g at 14% alpha acids)
 0.75 oz. (21 g) Amarillo® hops (dry hop)
 1 oz. (28 g) Centennial hops (dry hop)
 1 tsp. Irish moss (15 min.)
 Wyeast 1272 (American Ale II) or
 White Labs WLP051 (California V) yeast
 ¾ cups corn sugar (if priming)

Step by Step

Steep crushed grains in 2.25 gallons (8.5 L) of water at 152 °F (67 °C) for 45 minutes. Wash grains with 2 gallons (7.6 L) hot water. Top off brewpot to 6.5 gallons (25 L). Boil for 90 minutes, adding hops and Irish moss at the times indicated in the ingredient list. Whirlpool the wort and let it sit for 15 minutes prior to cooling. Ferment at 68 °F (20 °C).

Black Rye IPA

(5 gallons/19 L, all-grain)
 OG = 1.066 FG = 1.015
 IBU = 71 SRM = 25 ABV = 7%

Ingredients

11.5 lbs. (5.2 kg) Belgian 2-row malt
 15 oz. (0.43 kg) rye malt
 7.2 oz. (0.21 kg) crystal malt (40 °L)
 7.2 oz. (0.21 kg) flaked oats
 6.8 oz. (0.19 kg) Carafa® II malt
 5 oz. (0.14 kg) chocolate malt
 9.1 AAU Centennial hops (60 min.)
 (0.91 oz./26 g at 10% alpha acids)
 14 AAU Centennial hops (30 min.)
 (1.4 oz./40 g at 10% alpha acids)
 0.45 oz. (13 g) Centennial hops (0 min.)
 1.4 oz. (39 g) Simcoe® hops (dry hop)
 1 tsp. Irish moss (10 min.)
 Safale US-05 yeast
 ¾ cup corn sugar (if priming)

Step by Step

Mash with a liquor-to-grist ratio of 1.25 qts./lb. (2.6 L/kg). Single step infusion mash at 154 °F (68 °C) for 60 minutes. Two-batch sparge at 168 °F (76 °C). The total pre-boil wort is 6.4 gallons (24 L). Boil for 75 minutes, adding your hops according to the ingredient list. Ferment at 68 °F (20 °C) until airlock activity has dropped off but not stopped, ~7–10 days, as you want the fermentation to produce enough CO₂ in the secondary to blow off the oxygen in the headspace. Rack to a secondary fermenter along with 1.4 oz. (39 g) of Simcoe® whole hops (no bag) for 14 days. Let the beer condition for another week in the secondary. Bottle or keg to 2.5 volumes CO₂.

BLACK RYE IPA

(5 gallons/19 L, partial mash)
 OG = 1.066 FG = 1.015
 IBU = 71 SRM = 25 ABV = 7%

Ingredients

6.6 lbs. (3 kg) golden light liquid malt extract
 2 lbs. (0.91 kg) Belgian 2-row malt
 15 oz. (0.43 kg) rye malt
 7.2 oz. (0.21 kg) crystal malt (40 °L)
 7.2 oz. (0.21 kg) flaked oats
 6.8 oz. (0.19 kg) Carafa® II malt
 5 oz. (0.14 kg) chocolate malt
 9.1 AAU Centennial hops (60 min.)
 (0.91 oz./26 g at 10% alpha acids)
 14 AAU Centennial hops (30 min.)
 (1.4 oz./40 g at 10% alpha acids)
 0.45 oz. (13 g) Centennial hops (0 min.)
 1.4 oz. (39 g) Simcoe® hops (dry hop)
 1 tsp. Irish moss (10 min.)
 Safale US-05 yeast

¾ cup corn sugar (if priming)

Step by Step

Add all the crushed grains into a large muslin bag and place in 2 gallons (7.6 L) water and hold at 154 °F (68 °C) for 60 minutes. Raise the grain bag out of the water and place in a colander. Slowly wash the grains with 1 gallon (4 L) hot water. The total pre-boil wort is 6.4 gallons (24 L). Boil for 75 minutes. Ferment at 68 °F (20 °C) until airlock activity has dropped off but not stopped, ~7–10 days, as you want the fermentation to produce enough CO₂ in the secondary to blow off the oxygen in the headspace. Rack to a secondary fermenter along with 1.4 oz. (39 g) of Simcoe® whole hops (no bag) for 14 days. Let the beer condition for another week in the secondary. Bottle or keg to 2.5 volumes CO₂.

DC's Rye IPA

(5 gallons/19 L, all-grain)
 OG = 1.073 FG = 1.013
 IBU = 80 SRM = 12 ABV = 8.2%

Ingredients

11 lbs. (5.0 kg) 2-row pale malt
 3 lbs. (1.36 kg) rye malt
 1.25 lbs. (0.57 kg) crystal malt (60 °L)
 0.5 lb. (0.23 kg) Carapils® malt
 0.5 lb. (0.23 kg) wheat malt
 4.9 AAU Mt. Hood whole hops (first wort hop) (1 oz./28 g at 4.9% alpha acids)
 17.8 AAU Columbus whole hops (60 min.)
 (1 oz./28 g at 17.8% alpha acids)
 2.45 AAU Mt. Hood whole hops (30 min.)
 (0.5 oz./14 g at 4.9% alpha acids)
 1.5 oz. (43 g) Mt. Hood whole hops (0 min.)
 1 oz. (28 g) Columbus whole hops (dry hop)
 1 tsp. gypsum (60 min.)
 1 tsp. Irish moss (15 min.)
 Wyeast 1272 (American Ale II) or White Labs WLP051 (California V Ale) yeast
 ¾ cup corn sugar (if priming)

Step by Step

Single infusion mash with a liquor-to-grist ratio of 1.3 qts./lb. (2.7 L/kg) at 153 °F (67 °C) for 60 minutes. During sparge phase, add the first wort hop addition and gypsum salt to the brew kettle. Boil for 10 minutes for hot break to form, then start hop schedule. Ferment at 65 °F (18 °C), rack to secondary and dry hop for two weeks. For an added hop blast, add an additional 1 oz. (28 g) Columbus hops to keg.

DC'S RYE IPA

(5 gallons/19 L, extract with grains)
 OG = 1.073 FG = 1.013
 IBU = 80 SRM = 12 ABV = 8.2%



Ingredients

5 lbs. (2.3 kg) extra light dried malt extract
 3.3 lbs. (1.5 kg) rye liquid malt extract
 1.25 lbs. (0.57 kg) crystal malt (60 °L)
 4.9 AAU Mt. Hood whole hops (first wort hop) (1 oz./28 g at 4.9% alpha acids)
 17.8 AAU Columbus whole hops (60 min.) (1 oz./28 g at 17.8% alpha acids)
 2.45 AAU Mt. Hood whole hops (30 min.) (0.5 oz./14 g at 4.9% alpha acids)
 1.5 oz. (43 g) Mt. Hood whole hops (0 min.)
 1 oz. (28 g) Columbus whole hops (dry hop)
 1 tsp. gypsum (60 min.)
 1 tsp. Irish moss (15 min.)
 Wyeast 1272 (American Ale II) or White Labs WLP051 (California V Ale) yeast
 ¾ cup corn sugar (if priming)

Step by Step

Steep the crushed grains in 2 gallons (7.6 L) as the water heats up. Remove the grain bag when the temperature hits about 170 °F (18 °C). Place grain bag in a colander and wash the grains with 2 qts. (2 L) hot water. If you can, top the brew kettle off to 6.5 gallons (25 L) and bring to boil, adding the first wort hops, all the malt extract and gypsum before boil is achieved. If your brewpot can not handle that much volume, wait on adding the dried malt extract until the final 15 minutes of the boil. Add hops and Irish moss according to the schedule. After 60 minutes of boiling, chill the wort to yeast-pitching temperature and top off to 5 gallons (19 L) in the fermenter. Ferment at 65 °F (18 °C), rack to secondary and dry hop for two weeks. For an added hop blast, add an additional 1 oz. (28 g) Columbus hops to keg or secondary fermenter.

Sierra Nevada Brewing Co.'s Ruthless Rye IPA clone

(5 gallons/19 L, all-grain)
 OG = 1.061 FG = 1.012
 IBU = 55 SRM = 11 ABV = 6.6%

Ingredients

11.25 lbs. (5.1 kg) 2-row pale malt
 13 oz. (0.37 kg) rye malt
 11 oz. (0.31 kg) caramel malt (40 °L)
 1.5 oz. (43 g) chocolate malt
 6.5 AAU Nugget hops (90 min.) (0.50 oz./14 g at 13% alpha acids)
 11.3 AAU Equinox™ hops (15 min.) (0.75 oz./21 g at 15% alpha acids)
 9 AAU Chinook hops (5 min.) (0.75 oz./21 g at 12% alpha acids)
 3 AAU Citra® hops (5 min.) (0.25 oz./7 g at 12% alpha acids)

1 oz. (28 g) Chinook hops (dry hop)
 0.5 oz. (14 g) Citra® hops (dry hop)
 0.5 oz. (14 g) Equinox™ hops (dry hop)
 Wyeast 1056 (American Ale),
 White Labs WLP001 (California Ale), or
 Safale US-05 yeast
 (1.33 qt./1.25 L yeast starter)
 1 cup corn sugar (if priming)

Step by Step

Two or three days before brew day, make the yeast starter, aerating the wort thoroughly (preferably with oxygen) before pitching the yeast. On brew day, mash in at 154 °F (68 °C) in 4 gallons (15 L) of water. Hold at this temperature for 60 minutes. Raise mash temperature to 170 °F (77 °C), hold for 5 minutes then recirculate. Run off wort and sparge with water hot enough to keep the grain bed around 170 °F (77 °C). Collect 7 gallons (26 L) of wort. (Check that final runnings do not drop below a specific gravity of 1.010.) Boil wort for 90 minutes, adding hops at times indicated. Ferment at 68 °F (20 °C). Dry hop in secondary for five days.

SIERRA NEVADA BREWING CO.'S RUTHLESS RYE IPA CLONE

(5 gallons/19 L, partial mash)
 OG = 1.061 FG = 1.012
 IBU = 55 SRM = 11 ABV = 6.6%

Ingredients

2 lbs. 6 oz. (1.1 kg) 2-row pale malt
 1 lb. (0.45 kg) light, dried malt extract
 5 lbs. (2.3 kg) light, liquid malt extract (15 min.)
 13 oz. (0.37 kg) rye malt
 11 oz. (0.31 kg) caramel malt (40 °L)
 1.5 oz. (43 g) chocolate malt
 6.5 AAU Nugget hops (90 min.) (0.50 oz./14 g at 13% alpha acids)
 11.3 AAU Equinox™ hops (15 min.) (0.75 oz./21 g at 15% alpha acids)
 9 AAU Chinook hops (5 min.) (0.75 oz./21 g at 12% alpha acids)
 3 AAU Citra® hops (5 min.) (0.25 oz./7 g at 12% alpha acids)
 1 oz. (28 g) Chinook hops (dry hop)
 0.5 oz. (14 g) Citra® hops (dry hop)
 0.5 oz. (14 g) Equinox™ hops (dry hop)
 Wyeast 1056 (American Ale),
 White Labs WLP001 (California Ale), or
 Safale US-05 yeast
 (1.33 qt./1.25 L yeast starter)
 1 cup corn sugar (if priming)

Step by Step

Mash grains at 154 °F (68 °C) in 5.5 qts. (5.2 L) of water. Hold at this temperature for 45 minutes. Collect 2.25 gallons (8.5 L) of wort. Add water to make at least 3 gallons (11 L) of wort. Stir in dried malt extract and

boil wort for 90 minutes, adding hops at times indicated. Add liquid malt extract in the final 15 minutes of the boil. Chill the wort, transfer it to your fermenter and top up to 5 gallons (19 L). Aerate wort and pitch yeast. Ferment at 68 °F (20 °C). Dry hop in secondary fermenter for five days.

SIERRA NEVADA BREWING CO.'S RUTHLESS RYE IPA CLONE

(5 gallons/19 L, extract with grains)
 OG = 1.061 FG = 1.012
 IBU = 55 SRM = 11 ABV = 6.6%

Ingredients

2 lbs. (0.91 kg) extra light dried malt extract
 2 lbs. (0.91 kg) rye liquid malt extract (15 min.)
 3 lbs. (1.36 kg) light liquid malt extract (15 min.)
 11 oz. (0.31 kg) caramel malt (40 °L)
 1.5 oz. (43 g) chocolate malt
 6.5 AAU Nugget hops (90 min.) (0.50 oz./14 g at 13% alpha acids)
 11.3 AAU Equinox™ hops (15 min.) (0.75 oz./21 g at 15% alpha acids)
 9 AAU Chinook hops (5 min.) (0.75 oz./21 g at 12% alpha acids)
 3 AAU Citra® hops (5 min.) (0.25 oz./7 g at 12% alpha acids)
 1 oz. (28 g) Chinook hops (dry hop)
 0.5 oz. (14 g) Citra® hops (dry hop)
 0.5 oz. (14 g) Equinox™ hops (dry hop)
 Wyeast 1056 (American Ale),
 White Labs WLP001 (California Ale), or
 Safale US-05 yeast
 (1.33 qt./1.25 L yeast starter)
 1 cup corn sugar (if priming)

Step by Step

Steep crushed grains in 3 qts. (2.9 L) of water as the water heats up to 170 °F (77 °C). Rinse grains with 2 qts. (2 L) of 170 °F (77 °C) water. Add water to brewpot to make at least 3 gallons (11 L) of wort. Stir in dried malt extract and boil wort for 90 minutes, adding hops at times indicated. Add liquid malt extract in the final 15 minutes of the boil. Chill wort and transfer to fermenter. Top fermenter up to 5 gallons (19 L). Aerate wort and pitch yeast. Ferment at 68 °F (20 °C). Dry hop in secondary fermenter for 5 days.

Smooth Rye'd

(5 gallons/19 L, all-grain)
 OG = 1.065 FG = 1.016
 IBU = 57 SRM = 6 ABV = 6.8%

Ingredients

8.5 lbs. (3.9 kg) 2-row pale malt



- 3 lbs. (1.4 kg) wheat malt
- 1 lb. (0.45 kg) rye malt
- 1 lb. (0.45 kg) flaked rye
- 2 oz. (57 g) caramel malt (60 °L)
- 2 oz. (57 g) Victory® malt
- 13 AAU Nugget hops (60 min.)
(1 oz./28 g at 13% alpha acids)
- 3 AAU Crystal hops (15 min.)
(1 oz./28 g at 3% alpha acids)
- 12 AAU Chinook hops (5 min.)
(1 oz./28 g at 12% alpha acids)
- 1 oz. (28 g) Amarillo® hops (dry hop)
- 1 oz. (28 g) Summit™ hops (dry hop)
- ½ whirlfloc tablet (or 1 tsp. Irish moss)
- Wyeast 1056 (American Ale),
White Labs WLP001 (California Ale), or
Safale US-05 yeast
(2 qt./2 L yeast starter or 9 g dried yeast)
- 1 cup corn sugar (if priming)

Step by Step

Adjust water chemistry for a pale beer. (If using reverse osmosis or distilled water, add ¼ tsp. calcium chloride and ½ tsp. gypsum for every 6 gallons/23 L.)

Mash grains at 150 °F (66 °C) for 45 minutes in 17 qts. (16 L) of water. Boil wort for 60 minutes, adding hops at times indicated. Add whirlfloc tablet for final 5 minutes of the boil. Ferment at 65 °F (18 °C). Dry hop for four to seven days.

SMOOTH RYE'D

(5 gallons/19 L, extract with grains)
OG = 1.065 FG = 1.016
IBU = 57 SRM = 6 ABV = 6.8%

Ingredients

- 3 lbs. (1.4 kg) light dried malt extract
- 3.25 lbs. (1.5 kg) wheat dried malt extract
- 1.5 lbs. (0.68 kg) rye malt
- 0.5 lb. (0.23 kg) flaked rye
- 2 oz. (57 g) caramel malt (60 °L)
- 2 oz. (57 g) Victory® malt
- 13 AAU Nugget hops (60 min.)
(1 oz./28 g at 13% alpha acids)
- 3 AAU Crystal hops (15 min.)
(1 oz./28 g at 3% alpha acids)
- 12 AAU Chinook hops (5 min.)
(1 oz./28 g at 12% alpha acids)
- 1 oz. (28 g) Amarillo® hops (dry hop)
- 1 oz. (28 g) Summit™ hops (dry hop)
- ½ whirlfloc tablet (or 1 tsp. Irish moss)
- Wyeast 1056 (American Ale),
White Labs WLP001 (California Ale), or
Safale US-05 yeast
(2 qt./2 L yeast starter or 9 g dried yeast)
- 1 cup corn sugar (if priming)

Step by Step

Steep grains at 150 °F (66 °C) for 45 minutes. Add roughly half of the malt extract and bring volume to 3 gallons (11 L) or more. Boil for 60 minutes, adding hops at

times indicated. Add remaining malt extract and whirlfloc tablet with 5 minutes left in the boil. Cool wort and transfer to fermenter. Top up to 5 gallons (19 L) with cool water. Aerate, pitch yeast and ferment at 65 °F (18 °C). Dry hop four to seven days.

Tips For Success:

As the name implies, this is a smooth version of a rye IPA. It has the characteristic “snap” from rye and rye malt, but this is not as pronounced as in some rye beers. If you’d prefer a more “in your face” version, try adding a pound (0.45 kg) of rye malt to your mash (or steep) and 0.5 oz. (14 g) of Columbus hops — or any other high-cohumulone hop with a solid “bite” — at 30 minutes left in the boil. This will make a more aggressive beer, with an original gravity just short of 1.070 and IBUs somewhere in the 70s (depending on the alpha acid percent of the additional hops used).

WHEAT IPA

Sumpin' Like Little Sumpin' Sumpin'

(5 gallons/19 L, all-grain)
OG = 1.073 FG = 1.018
IBU = 63 SRM = 5 ABV = 7.7%

Ingredients

- 10 lbs. (4.5 kg) 2-row pale malt
- 4 lbs. (1.8 kg) wheat malt
- 1 lb. (0.45 kg) flaked wheat
- 2 oz. (57 g) Victory® malt
- 9.8 AAU Nugget hops (90 min.)
(0.75 oz./21 g at 13% alpha acids)
- 3 AAU Crystal hops (15 min.)
(1 oz./28 g at 3% alpha acids)
- 8 AAU Cascade hops (15 min.)
(1 oz./28 g of 8% alpha acids)
- 12 AAU Chinook hops (2 min.)
(1 oz./28 g at 12% alpha acids)
- 9 AAU Amarillo® hops (2 min.)
(1 oz./28 g at 9% alpha acids)
- 1 oz. (28 g) Cascade hops (dry hop)
- 1 oz. (28 g) Centennial hops (dry hop)
- 1 oz. (28 g) Simcoe® hops (dry hop)
- 1 oz. (28 g) Chinook hops (dry hop)
- 0.6 oz. (17 g) Amarillo® hops (dry hop)
- 0.5 oz. (14 g) Columbus hops (dry hop)
- ½ whirlfloc tablet (or 1 tsp. Irish moss)
- White Labs WLP090 (San Diego Super) yeast
(2.5 qt./2.5 L yeast starter)
- 1 cup corn sugar (if priming)

Step by Step

Adjust water chemistry for a pale beer. (If using reverse osmosis or distilled water, add ¼ tsp. calcium chloride and ½ tsp. gypsum for

every 6 gallons/23 L.) Mash grains at 152 °F (67 °C) for 45 minutes. Boil wort for 90 minutes, adding hops at times indicated. Add whirlfloc tablet for final five minutes of the boil. Ferment at 67 °F (19 °C). Dry hop for four to seven days.

SUMPIN' LIKE LITTLE SUMPIN' SUMPIN'

(5 gallons/19 L, partial mash)
OG = 1.073 FG = 1.018
IBU = 63 SRM = 5 ABV = 7.7%

Ingredients

- 2 lbs. (0.91 kg) 2-row pale malt
- 1 lb. (0.45 kg) wheat malt
- 1 lb. (0.45 kg) flaked wheat
- 2 oz. (57 g) Victory® malt
- 2.25 lbs. (1 kg) light, dried malt extract
- 5 lbs. (2.3 kg) wheat liquid malt extract
- 9.8 AAU Nugget hops (90 min.)
(0.75 oz./21 g at 13% alpha acids)
- 3 AAU Crystal hops (15 min.)
(1 oz./28 g at 3% alpha acids)
- 8 AAU Cascade hops (15 min.)
(1 oz./28 g of 8% alpha acids)
- 12 AAU Chinook hops (2 min.)
(1 oz./28 g at 12% alpha acids)
- 9 AAU Amarillo® hops (2 min.)
(1 oz./28 g at 9% alpha acids)
- 1 oz. (28 g) Cascade hops (dry hop)
- 1 oz. (28 g) Centennial hops (dry hop)
- 1 oz. (28 g) Simcoe® hops (dry hop)
- 1 oz. (28 g) Chinook hops (dry hop)
- 0.6 oz. (17 g) Amarillo® hops (dry hop)
- 0.5 oz. (14 g) Columbus hops (dry hop)
- ½ whirlfloc tablets (or 1 tsp. Irish moss)
- White Labs WLP090 (San Diego Super) yeast
(2.5 qt./2.5 L yeast starter)
- 1 cup corn sugar (if priming)

Step by Step

Place crushed grains in a large steeping bag. Add 5.6 qts. (5.4 L) of 163 °F (73 °C) water to a 2-gallon (7.8-L) beverage cooler. Submerge bag and mash grains at 152 °F (67 °C) for 45 minutes. Run off and sparge with 170 °F (77 °C) water to collect about 2.5 gallons (9.5 L) of wort. Add dried malt extract and bring volume to 3 gallons (11 L) or more. Boil wort for 90 minutes, adding hops at times indicated. Add liquid malt extract and whirlfloc for final 15 minutes of the boil. Cool wort and transfer to fermenter. Top up to 5 gallons (19 L), aerate and pitch yeast. Ferment at 67 °F (19 °C). Dry hop for four to seven days.

Tips For Success:

Expect a lot of kräusen and try to ferment in a vessel large enough that it (and the bitterness associated with it) doesn't blow off. If you can't find the San Diego Super Yeast, any clean ale yeast will do.



Wheat IPA

(5 gallons/19 L, all-grain)
OG = 1.068 FG = 1.013
IBU = 94 SRM = 6 ABV = 7.2%

Ingredients

13.2 lbs. (6 kg) white wheat malt (2 °L)
8.8 oz. (0.25 kg) biscuit malt (25 °L)
21.25 AAU Columbus pellet hops (60 min.)
(1.25 oz./35 g at 17% alpha acids)
1 oz. (28 g) Centennial pellet hops (0 min.)
2 oz. (57 g) Cascade pellet hops (0 min.)
1 oz. (28 g) Centennial pellet hops (dry hop)
2 oz. (57 g) Cascade pellet hops (dry hop)
White Labs WLP001 (California Ale) or
Wyeast 1056 (American Ale) yeast
¾ cup corn sugar (if priming)

Step by Step

Target 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 149 °F (65 °C). Hold the mash at 149 °F (65 °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 6.5 gallons (25 L) and the gravity is 1.053.

Boil 90 minutes, adding hops at times indicated. Chill the wort to 67 °F (19 °C) and aerate thoroughly. The proper pitch rate is two packages of liquid yeast or one package of liquid yeast in a 2.7-liter (~0.75 gallon) starter. Ferment at 67 °F (19 °C) until the yeast drops clear. Fermentation should be complete in about one week. Allow the lees to settle and add the dry hops. Dry hopping should be carried out around 60–65 °F (16–18 °C) for about a week. Then rack to a keg and force carbonate or rack to a bottling bucket, add priming sugar, and bottle. Target a carbonation level of 2.5 volumes CO₂.

WHEAT IPA

(5 gallons/19 L, extract only)
OG = 1.065 FG = 1.015
IBU = 96 SRM = 6 ABV = 6.7%

Ingredients

8.8 lbs. (4 kg) wheat liquid malt extract (4 °L)
21.25 AAU Columbus pellet hops (60 min.)
(1.25 oz./35 g at 17% alpha acids)
1 oz. (28 g) Centennial pellet hops (0 min.)
2 oz. (57 g) Cascade pellet hops (0 min.)
1 oz. (28 g) Centennial pellet hops (dry hop)
2 oz. (57 g) Cascade pellet hops (dry hop)
White Labs WLP001 (California Ale) or
Wyeast 1056 (American Ale) yeast

¾ cup corn sugar (if priming)

Step by Step

Mix enough water with the malt extract to make a pre-boil volume of 5.9 gallons (22.3 L) and a gravity of 1.055. Stir thoroughly to help dissolve the extract and bring to a boil. The total wort boil time is 60 minutes. Add the hop additions at times indicated. Chill the wort to 67 °F (19 °C) and aerate thoroughly. The proper pitch rate is two packages of liquid yeast or one package of liquid yeast in a 2.5 liter (0.67 gallon) starter. Ferment at 67 °F (19 °C) until the yeast drops clear. At this temperature and with healthy yeast, fermentation should be complete in about one week. Allow the lees to settle and add the dry hops. Dry hopping should be carried out around 60–65 °F (16–18 °C) for about a week. Then rack to a keg and force carbonate or rack to a bottling bucket, add priming sugar, and bottle. Target a carbonation level of 2.5 volumes CO₂.

WHITE IPA

At Wits' End IPA

(5 gallons/19 L, all-grain)
OG = 1.070 FG = 1.014
IBU = 40 SRM = 5 ABV = 8.5%

Recipe inspired by Collaboration #2, a collaboration between Boulevard Brewing Co. and Deschutes Brewery.

Ingredients

4 lbs. (1.8 kg) Pilsner malt
4 lbs. (1.8 kg) 2-row pale malt
4 lbs. (1.8 kg) wheat malt
1 lb. (0.45 kg) torrified wheat
8 oz. (0.23 kg) flaked oats
8 oz. (0.23 kg) table sugar (0 min.)
6 AAU US Magnum hops (60 min.)
(0.5 oz./14 g at 12% alpha acids)
4.5 AAU Centennial hops (2 min.)
(0.5 oz./14 g at 9% alpha acids)
6 AAU Citra® hops (2 min.)
(0.5 oz./14 g at 12% alpha acids)
3.8 AAU Cascade hops (2 min.)
(0.5 oz./14 g at 6.5% alpha acids)
1.25 oz. (35 g) Centennial hops (dry hop)
1.25 oz. (35 g) Citra® hops (dry hop)
1.25 oz. (35 g) Cascade hops (dry hop)
2 oz. (57 g) fresh sweet orange peel (0 min.)
0.5 oz. (14 g) freshly crushed coriander seed (0 min.)
4 smashed stalks (or bruised) lemongrass (0 min.)
1 Tbsp. chopped fresh sage leaves (0 min.)
Wyeast 3787 (Trappist High Gravity),
White Labs WLP530 (Abbey Ale), or
Lallemand Abbaye Ale yeast
(2 qt./~2 L yeast starter)
1 cup corn sugar (if priming)

Lallemand Abbaye Ale yeast
(2 qt./~2 L yeast starter)
1 cup corn sugar (if priming)

Step by Step

Mash at 150 °F (66 °C) for 60 minutes. Boil for 90 minutes adding hops at times indicated. At the end of the boil, turn off heat and add the sugar and spices directly to the brewpot. Give a big stir to create a whirlpool and let settle for 20 minutes. Chill wort to yeast pitching temperature and rack to fermenter. Ferment at 65 °F (18 °C). Dry hop for 5 days just before bottling or kegging.

AT WITS' END IPA

(5 gallons/19 L, partial mash)
OG = 1.070 FG = 1.014
IBU = 40 SRM = 5 ABV = 8.5%

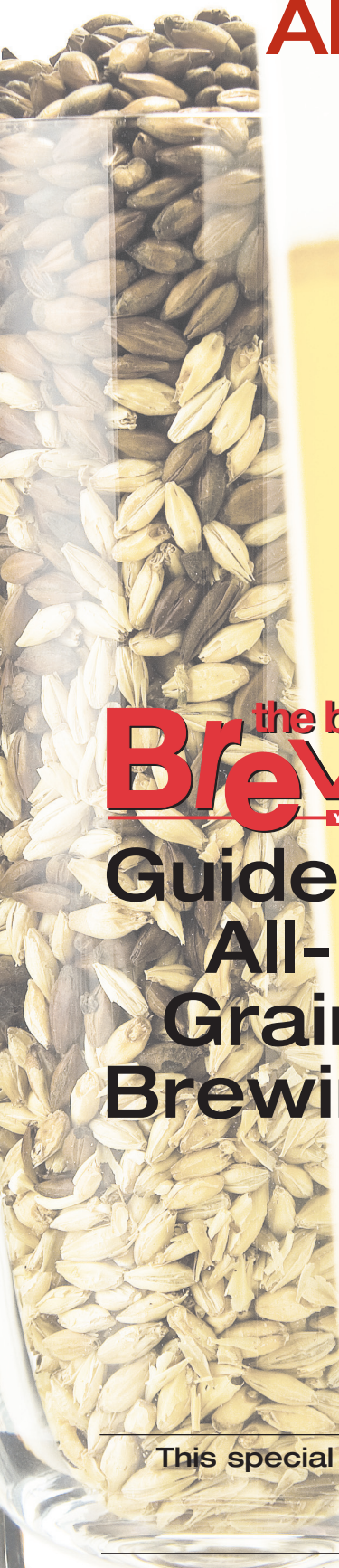
Ingredients

3.3 lbs. (1.5 kg) wheat dried malt extract
3.3 lbs. (1.5 kg) Pilsen liquid malt extract
1 lb. (0.45 kg) Pilsner malt
1 lb. (0.45 kg) torrified wheat
8 oz. (0.23 kg) flaked oats
8 oz. (0.23 kg) table sugar (0 min.)
6 AAU US Magnum hops (60 min.)
(0.5 oz./14 g at 12% alpha acids)
4.5 AAU Centennial hops (2 min.)
(0.5 oz./14 g at 9% alpha acids)
6 AAU Citra® hops (2 min.)
(0.5 oz./14 g at 12% alpha acids)
3.8 AAU Cascade hops (2 min.)
(0.5 oz./14 g at 6.5% alpha acids)
1.25 oz. (35 g) Centennial hops (dry hop)
1.25 oz. (35 g) Citra® hops (dry hop)
1.25 oz. (35 g) Cascade hops (dry hop)
2 oz. (57 g) fresh sweet orange peel (0 min.)
0.5 oz. (14 g) freshly crushed coriander seed (0 min.)
4 smashed stalks (or bruised) lemongrass (0 min.)
1 Tbsp. chopped fresh sage leaves (0 min.)
Wyeast 3787 (Trappist High Gravity),
White Labs WLP530 (Abbey Ale), or
Lallemand Abbaye Ale yeast
(2 qt./~2 L yeast starter)
1 cup corn sugar (if priming)

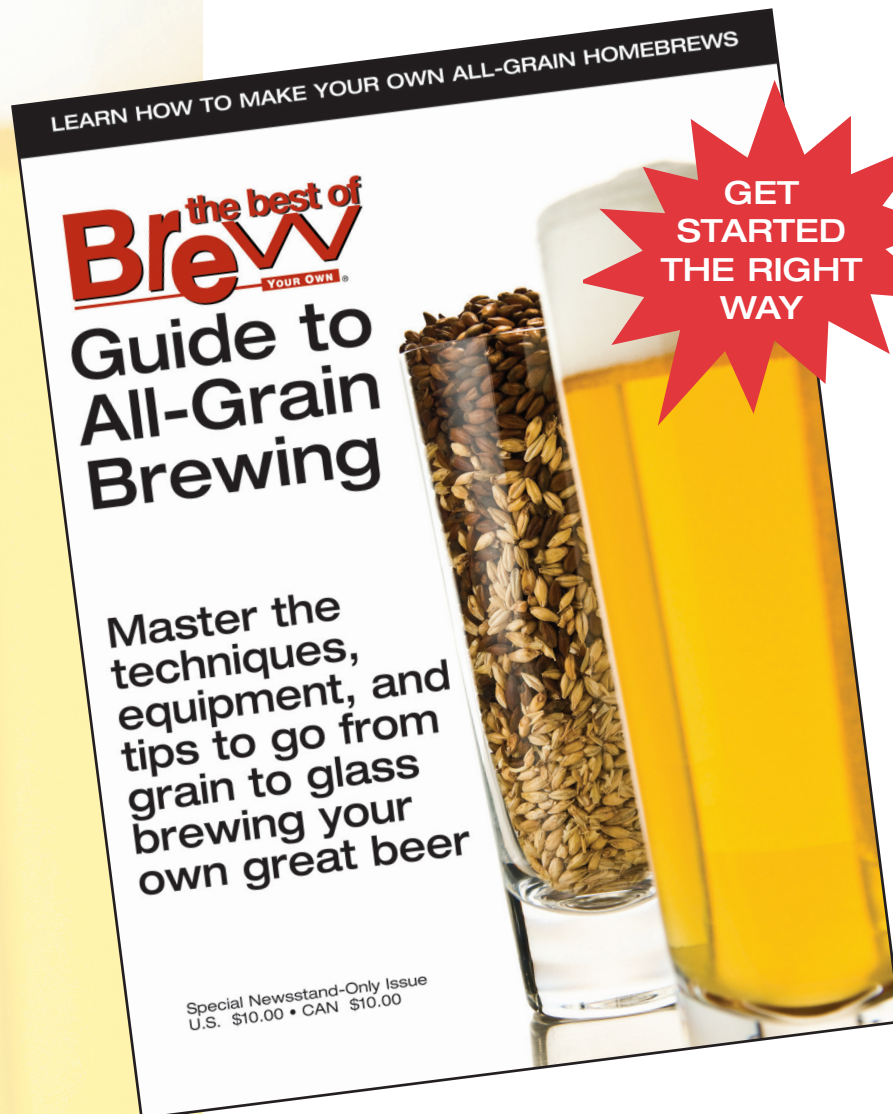
Step by Step

Mash grains in 1 gallon (3.8 L) water at 150 °F (66 °C) for 60 minutes. Wash grains with 1 gallon (3.8 L) hot water when the mash is complete. Top off the brewpot to 4 gallons (15 L). Boil for 90 minutes adding hops at times indicated. At the end of the boil, turn off heat and add the spices directly to the brewpot. Give a big stir to create a whirlpool and let settle for 20 minutes. Chill wort to yeast pitching temperature and rack to fermenter. Top off to 5 gallons (19 L). Ferment at 65 °F (18 °C). Dry hop for 5 days just before bottling or kegging.

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