

Pacific Northwest Homebrewers Conference

Specialty Malt for Brewers

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Contents of Handout:

First, a reminder of why we're here—for the Beer!

- Quiz Questions
- Malt Descriptions
- COA Matrix
- Quiz Answers

General Slide Topics:

- Four Pillars of Beer Flavor
- What is Malt
- Barley is Unique
- Varieties of Barley
- Terminology
- Three Stages of Malting
 - Steeping
 - Germination
 - Kilning
- Additional Treatments
- Five Families of Specialty Malts & Grains
 - Base Malts
 - Stewed Malts
 - Wet-Roasted Malts
 - Dry-Roasted Malts
 - Miscellaneous Malts & Grains
- GO to BREWCRAFT booth to Taste 30°L Samples: 9 am-2:30 pm.
- GO to GREAT WESTERN MALTING for take home samples of 5 malts.
- Resources (and please support Pink Boots Society – buy PBS beers!)

PNWHC - Specialty Malt for Brewers - Quiz Questions:

1. How does a grain become malt?
2. Which grain is most often malted?
3. Name 2 reasons why barley malt is most popular for beer. (6 were given.)
4. Name 4 malted grains. (10 were given.)
5. Name 2 families of malt & grains used in brewing. (5 were given.)
6. Name 1 of the minimum requirements need to malt a grain. (3 were given.)
7. Name 1 of the stages of malting a grain. (3 were given.)
8. Which of those 3 takes the longest amount of time?
9. True or False: The purpose of Steeping is to start brewing the beer.
10. True or False: The purpose of Germination is to replicate the best field growing conditions so that the kernel begins to grow into a plant.
11. What are Helices, and what important job do they do during Germination?
12. New vocabulary word: Kilning dries the malt until it becomes friable. What is the meaning of the word friable?
13. What does the term DP stand for?
14. True or False: Roasted Barley is a type of malt?
15. Barley is the only commodity grain that must be kept alive. Why is that important?
16. Every barley farmer could also potentially grow what other crops. (3 were listed.)
17. How many malt roasters are located in North America?
18. What is the definition of beer?
19. Name 3 of the Pillars of Beer Flavor? (4 were listed.)
20. Name 1 flaw that would cause a barley field to be downgraded to Feed Barley? (10 were listed)
21. True or false: Higher protein in barley delivers the lowest color malt.
22. True or false: Beer is most often made from barley?
23. Bonus Question: What year was Maris Otter introduced?

The End ☺

PNWHC – Specialty Malt for Brewers – March 5, 2016

Please note, when I created this list of malt descriptions it contained all the specialty malts then sold by Country Malt Group. Since then others have been added.

When making malt substitutions, please look at:

1. Family Group (Base/Stewed/Wet-Roasted/Dry-Roasted/Miscellaneous (by grain)).
2. Lovibond color.
3. Continent or growing region.

Country Malt Group – Malt Descriptions

April 1, 2015

Malts are generally listed by family type, and then in increasing Lovibond order. Please note: for malts with Lovibond numbers listing a range, the maltster's target is mid-range, and that is the color you should think of it as. Most malts are a blend of batches or "pieces" so that you get consistent malt year round. Surface color could vary by individual kernel, but overall color is consistent on fine grind and in congress wort.

1: BASE MALTS

Generally the lightest color with the highest diastatic power. True 6-row Distiller's Malt has the most diastatic power.

BRIESS MALTING – Pilsen Malt (1.0°L)

Clean, sweet, delicate, malty. Lightest color base malt; produces clean, crisp wort; excellent for lagers.

BAIRD MALTING - Pilsen (1.0-2.0°L)

A European-style pale Pilsen Malt. A low-color, high-extract, light-flavored malt. Perfect for brewing malty light-colored lagers, light ales, and beers where a crisp, clean finish is desired.

BEST MALZ – Heidelberg Malt (1.4-1.6°L)

German 2-row spring barley malted for lightest color. Great as a base malt in your palest lagers. Has excellent enzyme contribution. Creates a bright and high foaming beer. Use up to 100% of grist.

CANADA MALTING – Superior® Pilsen Malt (1.3-1.7°L)

A very pale, well-modified, base 2-row malt. Perfect for brewing malty light-colored lagers, light ales, and beers where a crisp, clean finish is desired.

GAMBRINUS – Pilsen Malt (1.3-1.8°L) *also in ORGANIC by special order only.*

Canadian grown low-protein barley is malted into a very pale base 2-row malt. Great for brewing malty light-colored lagers, light ales, and beers where a crisp, clean finish is desired.

GREAT WESTERN MALTING – Superior® Pilsen (1.4-1.8°L)

Very pale, well-modified, base 2-row malt. Perfect for brewing malty light-colored lagers, ales, and beers where a crisp, clean finish is desired. Malted from US western-grown low-protein barley.

BEST MALZ - Pilsen (1.5-2.0°L)

Malted from choice, well modified, low-protein German barley. The resultant beers are light colored, clean, full-bodied and malty. Perfect for Pilsners and Kölsch, Wits, and Tripels.

FRANCO BELGES MALT - Pilsen (1.7-2.0 °L)

Malted from low-protein barley. A low-color, high-extract, light-flavored malt. Well-modified. Can be mashed with a single-temperature infusion. A great base malt for all styles.

THOMAS FAWCETT & SONS MALT – Lager Malt (1.7-2.1°L)

An ideal base malt for your English lager beers, and for English-style Summer Ales.

GREAT WESTERN MALTING – Washington State Select® 2-Row Malt (1.8-2.2°L)

100% Washington-grown barley. Great base malt for all beers. Useful where a local Washington-only beer is desired. With moderate protein and enzyme levels and a very clean, smooth finish.

GREAT WESTERN MALTING – California State Select® 2-Row Malt (1.8-2.2°L)

100% California-grown barley. The perfect base malt for all beers. Useful where a local California-only beer is desired. With moderate protein and enzyme levels and a very clean, smooth finish.

GREAT WESTERN MALTING - Premium 2-Row Malt (1.8-2.2°L) *also in ORGANIC*

US western 2-Row. Our most popular base malt, perfect for all beer styles, especially American ales and lagers. With moderate protein and enzyme levels and a very clean, smooth finish.

GAMBRINUS – Pale Malt (1.8-2.8°L) *also in ORGANIC by special order only.*

A slightly darker base malt than Gambrinus Pilsen Malt due to longer kilning. Contributes a malty complexity to beer flavor and aroma. Malted from Canadian 2-row barley.

BRIESS MALTING – 2-Row Brewers Malt (1.8°L) *also in ORGANIC*

2-Row. Clean, sweet, mild malty. Malted in small batches making it good for small batch craft brewing; use as base malt for all styles.

PROSTEJOV/SLADOVNY SOUFFLET – Pilsen Malt (2.0°L)

Our only Pilsner malt from the Czech Republic has all the flavor you could want in a Bohemian Pilsner beer. Slightly darker than German malts, as is the Czech tradition!

FRANCO BELGES MALT - Pale Ale (2.0-2.2 °L)

A great light-colored base malt with low protein and very high extract. Contributes a light, clean, malty flavor character. Good for any beer style, especially Belgian style ales.

CANADA MALTING - Distiller's 6-Row Malt (2-3°L) *not recommended for beers*

Distiller's malt is light colored and provides high diastatic power plus good extract. It is very high in protein compared to beer malts. Used in the production of whiskies and other spirits.

THOMAS FAWCETT & SONS MALT - Maris Otter (2.3-3.0°L)

Floor malted Maris Otter has long been the favorite of English brewers for its brewhouse performance and rich, slightly nutty, crisp flavor. An excellent malt for any English beer style.

THOMAS FAWCETT & SONS MALT - Golden Promise (2.3-3.0°L)

Promise is a Pale Ale Malt grown in Scotland. It produces a sweet, mellow wort and is excellent for both brewing and distilling.

THOMAS FAWCETT & SONS MALT - Halcyon (2.3-3.0°L)

Halcyon is a barley variety that was bred from the Maris Otter and Sargent barley varieties. It tends to produce a less sweet wort than Maris Otter.

THOMAS FAWCETT & SONS MALT – Optic Spring Pale Ale (2.3-3.0°L)

Optic is a barley variety widely grown in the United Kingdom. It produces a sweet, flavorful wort with highly aromatic qualities. It is a Spring malting barley variety.

THOMAS FAWCETT & SONS MALT - Pearl (2.3-3.0°L)

A traditional English barley variety known for its slightly bready flavor. It produces a sweet, flavorful wort with aromatic qualities.

GREAT WESTERN MALTING - Northwest Pale Ale Malt (2.6-3.0°L)

A slightly darker base malt than our Premium 2-row malt due to longer British Pale Ale-style kilning. Contributes a malty complexity to beer flavor and aroma.

BAIRD MALTING - Maris Otter Malt (2.5-3.5°L)

Malted from lower protein Maris Otter winter barley, and modified to enhance foam formation and palate fullness. A favorite of brewers around the world for its earthy, nutty malt character.

BAIRD MALTING - Pale Ale Malt (2.5-3.5°L)

Malted from British 2-row barley. Contributes a malty complexity to beer flavor and aroma. Used as a base malt in traditional British Pale Ales, Porters and Stouts.

FRANCO BELGES MALT - Vienna (2.5-4.0°L)

Similar to Munich but lighter in color. Can be used as a base malt for increased malt aroma and flavor. Use in beers where you want to add color and malt complexity without caramel flavor.

BAIRD MALTING – Vienna (2.7-4.0°L)

Similar to Munich but lighter in color. Can be used as a base malt for increased malt aroma and flavor. Use in beers where you want to add color and malt complexity without caramel flavor.

GREAT WESTERN MALTING - Vienna Malt (3.0-4.0°L)

Similar to Munich but lighter in color. Can be used as a base malt for increased malt aroma and flavor. Use in beers where you want to add color and malt complexity without caramel flavor.

GAMBRINUS – ESB Malt (3.0-4.0°L)

This base malt targets the color profile between Pale Malt and Vienna Malt. Can be used as a base malt for increased malt aroma, flavor, and color. Malted from Canadian 2-row barley.

BRIESS MALTING – Pale Ale Malt (3.5°L)

2-Row. Rich malty flavor, hints of biscuit and nuts. Use as base or high percentage specialty malt; rich golden hue.

BRIESS MALTING – GoldPils® Vienna Malt (3.5°L)

2-Row Vienna malt provides a small amount of color and adds malt complexity. Can be used for 100% of the grist, or just as a base malt.

BEST MALZ - Vienna (3.0-5.0°L)

Provides full maltiness and some color, often with a nutty flavor. Used in European amber, golden and brown lagers as well as Marzen and Oktoberfest beers. Can be used up to 100% of the grist.

THOMAS FAWCETT & SONS MALT – Vienna (3.5-5.0°L)

Similar to Munich but lighter in color. Can be used as a base malt for increased malt aroma and flavor. Use in beers where you want to add color and malt complexity without caramel flavor.

2: STEWED MALTS

Stewed malts generally still retain some diastatic power and can often be used at 100% of the grist.

BEST MALZ – Caramel Pils® (1.6-3.1 °L)

Lightly kiln colored to add malt complexity to light colored lagers. Recommended at up to 50% of the grist.

FRANCO BELGES MALT - Special Aromatic (4.5-5.5 °L)

Kilned for soft mouth-feel, biscuit character, and complex malt flavor and aroma. Provides no caramel flavor. Was designed specifically for Belgian-style beers. Can be used up to 50% of grist.

BAIRD MALTING - Munich (4-8°L)

Used where increased malt flavor, color and aromas are desired, but where caramel/crystal flavors are not. High finishing heat is used to produce a full-bodied, flavorful malt.

BEST MALZ - Munich (4-8°L)

Increases beer color, mouth feel and malt character. Used in dark, aromatic and full-bodied lagers such as Märzens, Oktoberfests, Bocks and Double Bocks. Can be used up to 100% of the grist.

BRIESS MALTING – Ashburne® Mild Malt (5.3°L)

2-Row mid-range between Vienna and Munich malt. Slightly malty and sweet with a subtle toasty note. Use as a base or high percentage specialty malt; rich golden hues.

GAMBRINUS – Vienna Malt (5.0-7.0°L)

Similar to Munich but lighter in color. Use as a base malt for increased malt aroma and flavor, and where you want to add color and malt complexity without caramel flavor. Canadian 2-row barley.

FRANCO BELGES MALT - Munich (6.0-8.0°L)

Used where increased malt flavor and aromas are desired, but without caramel/crystal flavors. Provides the traditional taste, color and mouthfeel of Bocks, Oktoberfest/Märzens and Porters.

THOMAS FAWCETT & SONS MALT – Munich (5.7-9.5°L)

Used where increased malt flavor, color and aromas are desired, but where caramel/crystal flavors are not. High finishing heat is used to produce a full-bodied, flavorful malt.

GREAT WESTERN MALTING - Munich Malt (8-10°L) *also in ORGANIC*

Used where increased malt flavor and aromas are desired, but where caramel/crystal flavors are not. Can be used up to 100%. Munich Malt can be used as a base malt for bock beer and doppelbock.

GAMBRINUS – Munich 10L Malt (9.5-10.5°L) *also in ORGANIC by special order only.*

Use as a base malt where increased malt flavor and aromas are desired, but where crystal flavors are not. Great for bock beer and doppelbock. Can be used up to 100%. Canadian 2-row barley.

BEST MALZ - Dark Munich (8-12°L)

Maltier than the regular Munich, the Dark contributes more reddish/amber hues. Used in the production of dark, aromatic and full-bodied lager styles. Can be used up to 100% of the grist.

BRIESS MALTING – Bonlander® Munich Malt (10°L)

2-Row. Very smooth and malty sweet, warming. European-style Munich malt with a clean, malty flavor; golden to orange hues.

FRANCO BELGES MALT - Dark Munich (10-13.5°L)

Maltier than the regular Munich, the Dark contributes more reddish/amber hues. Used in dark, aromatic and full-bodied lager styles where malt complexity is desired, but caramel flavors are not.

BEST MALZ – Red X® (11-13°L)

Unique German malt with properties of both Munich and Crystal malts. If used at 100% of the grist, it creates a beer with a nearly garnet red color. Contributes a toasty, malty Munich-like complexity.

BEST MALZ – Caramel Hell® (8-16°L)

A Kiln colored malt designed to add malt complexity and light sweetness and color to light lagers and wheat beers. Recommended use is up to 50% of the grist.

BEST MALZ – Caramel Aromatic® (16-23°L)

German 2-Row aromatic malt is in the Munich malt family, but on the darker end. Contributes a rich intense non-crystal malt flavor and aroma to beer. Usage up to 10%.

BRIESS MALTING – Aromatic Malt (20°L)

2-Row dark Munich malt. Very smooth biscuit malt. European-style dark Munich malt that provides clean, intense malty flavor.

BEST MALZ - Melanoidin Malt (20-30°L)

A high-dried kilned malt. This flavorful non-crystallized malt is ideal for all types of red and dark lagers and ales, and “malt bombs” such as Doppel Bock. Can be used up to 20% of the grist.

GREAT WESTERN MALTING – Melanoidin (25-35°L)

Light brown biscuit-toast aromatic malt. This flavorful non-crystallized malt contributes mouthfeel and malt complexity to amber-colored and darker beers.

GAMBRINUS – Munch 30L Malt (30-35°L)

Light brown biscuit-toast aromatic malt. This flavorful non-crystallized malt contributes mouthfeel and malt complexity to amber-colored and darker beers. Malted from Canadian 2-row barley.

BEST MALZ – Caramel Munich I® (34-46°L)

Kiln stewed to increase malt complexity and color without adding crystalline sweetness. Great for dark lagers, märzen, bock biers, and dark wheat beers. Recommended use is up to 50% of the grist.

GREAT WESTERN MALTING – Sacchra® 50 (45-55°L)

Kiln stewed to saccharificatin temperature. Provides malt complexity with nearly crystalline sweetness, a creamy texture, and red color. Allows the hops to shine through. Use up to 20%.

BEST MALZ – Caramel Munich II® (50-95°L)

Kiln stewed to maximize flavor and color without adding crystalline sweetness. Great for your darkest lagers, bock biers, and darkest wheat beers. Recommended use is up to 50% of the grist.

3: WET-ROASTED MALTS

Malts that have been roasted do not have any diastatic power for conversion.

FRANCO BELGES MALT - Caramel Pilsen (9-11 °L)

Our darkest Caramel Pilsen malt is fully saccharified so the malt sugars are carmelized and glassy inside the kernel. Adds caramel aroma, reddish color, body, and head and foam retention.

BRIESS MALTING – Caramel Malt 10L (10°L)

Candy-like sweetness, mild caramel. Golden hues; drum roasted; improves foam; enhances viscosity.

THOMAS FAWCETT & SONS MALT - CaraMalt (10-13°L)

Will impart a light flavor and slight red hue. Great for dark lagers and ales. Will contribute dextrans and add to foam stability.

GREAT WESTERN MALTING - Crystal C15 (13-17°L) *also in ORGANIC*

Two-row malted barley that has been roasted to develop a light glassy caramelized interior. Delivers a subtle sweet caramel flavor and golden color to beer. Adds body like a dextrin malt but is sweeter.

BAIRD MALTING – Light Carastan (13-17 °L)

Stewed and then roasted, which crystallizes the interior of the malt kernels. The result is a light crystal malt that provides body, color and a delicate smooth caramel/toffee character to beer.

FRANCO BELGES MALT - Caramel Vienna (19-21°L)

Saccharification and gentle torrification develops a light caramel aroma and flavor in this light crystal malt. Often used in Abbey-style ales. Gives a fuller flavor to beer. Use as 5-20 % of grist.

THOMAS FAWCETT & SONS MALT - Pale Crystal (20-27°L)

Imparts a light caramel/crystal flavor, and slight red hue. A great crystal malt on the lower side of the color scale.

GREAT WESTERN MALTING - Crystal C30 (27-33°L)

Fully modified and saccharified, then caramelized at high humidity and moderately roasted. It provides a coppery color and a moderate sweet, malty, caramel flavor in the beer.

FRANCO BELGES MALT - Caramel Amber (28-32 °L)

Saccharification and torrification of selected barley develops rich caramel aroma and flavor. This medium-light crystal malt often used in Abbey-style ales. Use as 5-20% of the grist.

BAIRD MALTING - Carastan 30/37 (30-37°L)

Stewed and then roasted at high temperature, which crystallizes the interior of each malt kernel. The result is a pale, brown-colored malt providing body, color and a sweet caramel/toffee flavor to beer.

GREAT WESTERN MALTING - Crystal C40 (35-45°L) *also in ORGANIC*

Fully modified and saccharified, then caramelized at high humidity and roasted. It provides a light reddish-amber color and a medium sweet, malty, caramel flavor in the beer.

BRIESS MALTING – Caramel Malt 40L (40°L)

Sweet, caramel, toffee. Golden hues; drum roasted; improves foam; enhances viscosity.

FRANCO BELGES MALT - Caramel Munich 40 (38-42 °L)

Provides a light reddish-amber color and a medium sweet, malty, caramel flavor. Highly modified, caramelized and slightly toasted. Used in Belgian Dubbels.

THOMAS FAWCETT & SONS MALT - Crystal Malt I (42-48°L)

A good general-purpose crystal malt. Will impart a moderate amber color, caramel flavor and rich malt aroma to your beer.

BAIRD MALTING - Crystal 50/60 (50-60°L)

Stewed and then roasted slowly at higher temperatures, giving stronger toffee/caramel flavors. Used traditionally in the U.K. to give the characteristic color and flavor of Bitters and Pale Ales.

GREAT WESTERN MALTING - Crystal C60 (55-65°L) *also in ORGANIC*

Caramelized at high humidity and well roasted. Provides a red-amber color and a pronounced malty, toffee, caramel flavor in the beer. Perfect for Reds, Ambers and Porters.

BRIESS MALTING – Caramel Malt 60L (60°L) *also in ORGANIC*

Sweet, pronounced caramel. Deep golden to red hues; drum roasted; improves foam; enhances viscosity.

FRANCO BELGES MALT - Caramel Munich 60 (58-62 °L)

Highly modified, caramelized and slightly toasted. Contributes a rich malt aroma, caramel flavor, body, and a red-copper color to beer. Perfect for Abby ales and other dark or big beers.

THOMAS FAWCETT & SONS MALT - Crystal Malt II (62-68°L)

Stewed and then roasted slowly at higher temperatures to create a glassy crystal center. An excellent all-purpose crystal malt. Will impart sweet caramel/crystal/toffee notes to your beer.

GREAT WESTERN MALTING - Crystal C75 (70-80°L)

Caramelized at high humidity and well roasted. Provides a deep red color and a complex strong caramel and dark-toffee flavor in the beer. Great in big dark ales and malty specialty beers.

BAIRD MALTING - Crystal 70/80 (70-80°L)

Stewed and then roasted longer at high temperatures, giving intense and dark toffee/caramel flavors. These darker crystals are excellent for reddish-brown ales.

BRIESS MALTING – Caramel Malt 80L (80°L)

Pronounced caramel, slight burnt sugar, raisiny. Red to deep red hues; drum roasted; improves foam; enhances viscosity.

FRANCO BELGES MALT - Caramel Munich 80 (77-83 °L)

Highly modified, caramelized and roasted. Contributes a reddish color and complex strong caramel and dark-toffee flavor to the beer. Used in big rich malty beers.

THOMAS FAWCETT & SONS MALT - Dark Crystal Malt I (80-93°L)

Contributes a strong reddish hue to dark beers. This malt will impart a roasty edge on top of a malty sweetness.

GREAT WESTERN MALTING - Crystal C120 (115-125°L) *also in ORGANIC*

Caramelized at high humidity and roasted for a long time. Provides dark red-brown color & toffee-caramel, raisin and madeira flavors while avoiding the burnt character of chocolate or black malt.

THOMAS FAWCETT & SONS MALT - Dark Crystal Malt II (118-123°L)

Will provide an intense, crystal malt sweetness coupled with a moderate amount of burnt caramel bitterness. Use in moderation.

BRIESS MALTING – Caramel Malt 120L (120°L) *also in ORGANIC*

Pronounced caramel, burnt sugar, raisiny, prunes. Red to deep red hues; drum roasted; improves foam; enhances viscosity.

FRANCO BELGES MALT - Carmel Munich 120 (110-130 °L)

Provides intense toffee-caramel flavor while avoiding burnt character. Contributes dark cherry, plum and raisin notes to Belgian Abbey-style ales and dark specialty beers. Use as 2-8 % of grist.

BRIESS MALTING – Extra Special Malt® (130 °L)

Toasted marshmallow, toast, mild coffee, prunes, dry, woody. Hybrid drum roasted malt; has both caramel and dry roasted flavors. Leans toward raisin & madeira with a roasty finish.

BEST MALZ – Special X® (115-150°L)

Caramel and biscuit flavors. Hybrid roasted malt. Leans toward raisin and madeira with a dry finish.

GREAT WESTERN MALTING - Crystal C150 (145-155°L)

Caramelized at high humidity and roasted for a very long time. Provides a very dark color and an intense caramel and slightly burnt-toffee flavor. Contributes raisin and Madeira notes to dark beers.

BAIRD MALTING - Crystal 135/165 (135-165°L)

Caramelized at high humidity and roasted for a long time at high temperatures. Contributes a burnt toffee/dark caramel flavor. Provides Old and Strong Ales their signature dark-fruit character.

4: DRY-ROASTED MALTS

Malts that have been roasted do not have any diastatic power for conversion.

FRANCO BELGES MALT - Kiln Amber (15-20°L)

Excellent biscuit malt. A softly toasted malt with a light, biscuit flavor. Increases beer color, but does not color the foam. This is a great malt for any beer recipe calling for 'toasted' or 'biscuit' malt.

BRIESS MALTING – Victory Malt (28°L)

Toasty, bisuity, baking bread, nutty, clean. Biscuit-style malt; use in ales and lagers alike; deep golden to brown hues.

THOMAS FAWCETT & SONS MALT – Amber Malt (30-42°L)

Amber malt is bold roasted malt with a dark toast flavor. It is typically used in Brown or Porter recipes. This malt has no diastatic power.

THOMAS FAWCETT & SONS MALT - Brown Malt (52-65°L)

Brown malt is roasted pale malt, typically used in Brown Ales as well as in Porters and Stouts. Contributes a dry, biscuit, toast flavor.

BRIESS MALTING – CaraBrown Malt (55°L)

Smooth, slightly sweet malty, lightly toasted, biscuit, nutty, graham cracker, clean dry finish. Light brown to orange hues. Not a crystal malt. This is a straight dry-roasted brown malt.

BAIRD MALTING - Brown (50-70°L)

This brown/amber malt has a light, dry, biscuit flavor and is produced by roasting a kilned pale malt at high temperatures. Traditionally used to produce Bitters & Mild Ales and sweet Stouts.

FRANCO BELGES MALT - Kiln Coffee (165-175°L)

Akin to a Light Chocolate, this malt delivers subtle chocolate and coffee flavors and aromas. It is particularly well suited to Amber and Red beer styles.

THOMAS FAWCETT & SONS MALT - Pale Chocolate Malt (185-250°L)

Less highly-roasted than regular chocolate malt. Will add dark brown color and a mild chocolate/coffee flavor to dark Milds, Stouts, and Porters.

FRANCO BELGES MALT - Chocolate (300-375°L)

Provides a rich dark color and intense chocolate and coffee notes. Use smaller amounts for nutty flavor and red color. Lighter in color than some other chocolate malts. Great for Porters and Stouts.

GREAT WESTERN MALTING – Chocolate Malt (300-400°L)

US western 2-row barley is malted, dried, then roasted like cocoa beans to develop rich dark color and luscious chocolate character. Less provides nutty notes, more gives coffee-burnt toast and black tones.

BRIESS MALTING – Chocolate Malt (350°L) *also in ORGANIC*

Rich roasted coffee, cocoa. Use 1-10% in Porter, Stout, Brown Ale, Dunkel and other dark beers; use in all styles for color.

THOMAS FAWCETT & SONS MALT - Chocolate Malt (325-400°L)

A classic malt for Stouts, Porters, and Brown Ales. Provides color for a wide variety of darker beer styles.

BRIESS MALTING – Dark Chocolate Malt (420°L)

Rich smooth coffee. Use 1-10% in Porter, Stout, Brown Ale, Dunkel and other dark beers; use in all styles for color.

THOMAS FAWCETT & SONS MALT - Black Malt (410-500°L)

Black malt is pale malt that has been intensely roasted. Provides extremely dark color and dry, acrid, burnt toast undertones to the flavor of beer.

GREAT WESTERN MALTING – Black Malt (450-550°L)

US western 2-row barley is malted, kiln dried, then roasted like coffee beans to provide intense black coffee, burnt toast, and char flavors. Traditionally used in Stouts. A small amount contributes red color.

BAIRD MALTING - Chocolate (450-550°L)

Malted and roasted similarly to Brown malt but at higher final temperatures. Provides a rich dark color and roasted, sharp, burnt or astringent flavors, and intense chocolate and coffee notes.

FRANCO BELGES MALT - Kiln Black (450-550°L)

Strong burnt coffee, char, and astringent flavors. Used to brew very dark beers. A tiny quantity contributes a deep red color, otherwise the color contribution is black. Use at 5% or less of grist.

BRIESS MALTING – Black Malt (500°L) *also in ORGANIC*

Dry roasted, sharp to neutral. Use in dark beers for flavor; use in all styles for color with little flavor; has little impact on foam color.

BRIESS MALTING – Blackprinz Malt (500°L)

Bitterless black malt made from hull-less barley that was born naked without a husk. No bitter, astringent, dry flavors or aftertaste. Very delicate, clean flavor, mild roasted malty flavor.

BAIRD MALTING - Black Malt (500-700°L)

Black malt is darker than Chocolate malt and has strong burnt coffee, char and astringent flavors. A very small quantity gives a deep red color to beer, otherwise the color addition is black.

5: MISCELLANEOUS MALTS & GRAINS

Most miscellaneous malts & grains are considered adjuncts and have very little to no diastatic power for conversion.

Dextrin Malts

GREAT WESTERN MALTING – DextraPils® (<1.5°L)

Western 2-row dextrin-style malt contributes little or no flavor or color. Adds foam, head retention, body and mouthfeel. Generally used in light-colored beers where crystal malt is not appropriate.

BRIESS MALTING – Carapils® Malt (1.8°L) *also in ORGANIC*

2-Row malt. No flavor or color contribution. Very unique dextrin-style malt that adds body, foam retention and beer stability but no color or flavor.

BEST MALZ – Chit Malt (1.2-1.6°L)

German 2-row spring barley is malted for light color and to enhance froth stability. Use up to 15% of the grist.

Flaked Barley

GREAT WESTERN MALTING Superior® Flaked Barley (<1°L)

Whole grain barley is steamed and flattened and is partially pre-gelatinized. Aids in foam stability and head retention, and contributes complexity, body and mouthfeel.

BRIESS MALTING – Insta Grains® Barley Flakes (<1°L)

100% pre-gelatinized flaked barley is smaller than whole kernel flaked barley.

GRAIN MILLERS - Flaked Barley (<1°L)

Steamed and flattened whole kernel barley is partially pre-gelatinized. Contributes complexity to grain character and aids head retention and foam stability. Contributes to body and mouthfeel.

GRAIN MILLERS - Organic Flaked Barley (<1°L)

100% USDA Certified Organic 2-row whole kernel barley that has been steamed and flattened between rollers and is partially pre-gelatinized. Contributes head retention and foam stability.

THOMAS FAWCETT & SONS MALT - Flaked Barley (1.0-2.5°L)

Flaked barley is unmalted, dried barley which has been rolled into flat flakes. It imparts a rich, grainy flavor to beer and is used in primary in stout. It also improves head formation and retention.

Roasted Barley

Roasted barley is not malted first. If you are looking for crystal or roasted wheat or rye, please look under Miscellaneous/Wheat or Rye.

BRIESS MALTING – Roasted Barley (300°L) *also in ORGANIC*

Coffee, intense bitter, dry. Provides color and rich, sharp flavor which is characteristic of Stout and some Porters; impacts foam color.

THOMAS FAWCETT & SONS MALT - Roasted Barley (410-500°L)

Made from barley that has not been malted. Contributes a distinct, more astringent roasted bitter flavor in dark beer. Traditionally used in Irish Stouts.

GREAT WESTERN MALTING – Roasted Barley (450-550°L)

US western 2-row barley is roasted like coffee without being malted first. After roasting intensely, the barley is drenched with water to chill the heat and preserve the fine dry bitter coffee-like flavors.

BAIRD MALTING - Roasted Barley (500-700°L)

Not malted, but roasted slower and at a high temperature, then quenched with water. Lends a deep red to brown color and a sharp, bitter, dry, coffee flavor to Stouts and dark beers.

Wheat

GREAT WESTERN MALTING - Unmalted White Wheat (<1°L)

Clean raw wheat is traditionally used in Belgium to brew Wit biers, as beers made with unmalted wheat often maintain their desired “white” or cloudy look and generally do not drop out bright.

GRAIN MILLERS – Organic Unmalted Wheat (<1°L)

Raw organic wheat is used in Belgium to brew organic Wit biers, as beers made with unmalted

GREAT WESTERN MALTING Superior® Flaked Wheat (<1°L)

Whole grain white wheat is steamed and flattened and is partially pre-gelatinized. Excellent for foam stability and head retention. Converts easier than unmalted wheat with less haze.

BRIESS MALTING – Insta Grains® Red Wheat Flakes (<1°L)

100% pre-gelatinized flaked red wheat is smaller than whole kernel flaked wheat. wheat often maintain their desired “white” or cloudy look and generally do not drop out bright.

GRAIN MILLERS - Flaked White Wheat (<1°L)

Whole kernel flakes. Contributes less color than malted wheat. Excellent for foam stability and head retention. Subtle bready wheat aroma. Not as cloudy as unmalted wheat, but converts easier.

THOMAS FAWCETT & SONS MALT - Torrefied Wheat (1.0-2.5°L)

Generally used as a beer enhancer, Torrefied Wheat can be used to increase the size and retention of a head in beer. Provides biscuit and bread-like wheat flavors. Used in English Summer Ales.

BRIESS MALTING – Insta Grains® Torrefied Wheat (2°L)

100% pre-gelatinized air-puffed wheat kernels have a subtle, neutral character.

FRANCO BELGES MALT - Wheat Malt (1.8-2.0°L)

A very pale malted wheat. Wheat flavor is richer with Wheat Malt than with unmalted wheat. Enhances foam development and head retention. Adds creaminess to the texture.

BEST MALZ - Wheat Malt (1.6-2.3°L)

Wheat malt is principally used for Weizenbier and Wit beer. This light-colored Wheat malt produces beers with a creamy, spicy flavor, fuller mouth feel, and enhanced head retention.

THOMAS FAWCETT & SONS MALT - Wheat Malt (1.9-2.3°L)

An excellent U.K. light-colored wheat malt that produces superb wheat beers with appropriate bready aromas. Increases head retention and contributes a dry biscuity flavor.

GAMBRINUS – Organic Wheat Malt (1.8-2.8°L) *not available until 2014*

Malted from organic Canadian wheat. Fully-modified and kilned for full flavor. Great for brewing an organic new-world wheat ale or an organic German-style weissbier. Adds to head retention.

BRIESS MALTING – Red Wheat Malt (2.3°L)

Creamy, sweet, malty, wheat flour. Use as part or all of base malt in wheat beers.

BRIESS MALTING – White Wheat Malt (2.5°L)

Sweet, malty, wheat, mild bread dough. Use as part or all of base malt in wheat beers; improves head and head retention in any beer style.

GREAT WESTERN MALTING - Wheat Malt (3-4°L) *also in ORGANIC*

Western white wheat, fully-modified and kilned for rich flavor. We recommend adding Rice Hulls when using a high proportion of wheat to avoid a stuck mash.

BEST MALZ - Dark Wheat Malt (5-8°L)

Darker than the regular Wheat malt, with increased maltiness for a more robust character. Wheat malt produces beers with a creamy, spicy flavor, fuller mouth feel, and increased head retention.

FRANCO BELGES MALT - Caramel Wheat (35-45°L)

Increases color, wheat aroma, and head retention while imparting a medium caramel flavor. Created through a process of saccharification and light torrification, which develops a glassy kernel interior.

GREAT WESTERN MALTING – Crystal Wheat (45-55°L)

Western white wheat which has been caramelized at high humidity and roasted. Provides a copper-red color and a malty, toffee, caramel flavor in the beer. Perfect for darker wheat beers.

BRIESS MALTING – CaraCrystal® Wheat Malt (55°L)

Sweet, smooth, malty, bready, subtle caramel, dark toast, exceptionally clean finish. Orange to mahogany hues.

THOMAS FAWCETT & SONS MALT - Crystal Wheat (50-58°L)

Caramel wheat malt may be used just like other forms of caramel and crystal malt. It emphasizes wheat malt flavor and aroma, and will add color to wheat beers.

THOMAS FAWCETT & SONS MALT - Roasted Wheat (360-400°L)

Intensifies the typical aroma and color of dark top fermented beers such as Altbier, Weizen, and Weizenbock. Can be substituted for huskless or de-husked roasted barley for smooth roast flavor.

BRIESS MALTING – Midnight Wheat Malt (550°L)

Bitterless black malt made from hull-less wheat. No bitter, astringent, dry flavors or aftertaste. Starts slightly sweet, hints of roasted flavor, finishes exceptionally clean.

Rye

GREAT WESTERN MALTING Superior® Flaked Rye (<1°L)

Whole grain rye is steamed and flattened and is partially pre-gelatinized. Adds pronounced rye flavor, a spicy aroma, body, and grain complexity. Use at 5-20% of grist. May cause haziness.

GRAIN MILLERS - Flaked Rye (<1°L)

Steamed and flattened rye is partially pre-gelatinized. Adds pronounced rye flavor, a spicy aroma, body, and grain complexity. Used in Rye IPAs. Use at 5-20% of grist. May cause haziness.

BRIESS MALTING – Insta Grains® Rye Flakes (<1°L)

100% pre-gelatinized flaked rye is smaller than whole kernel flaked rye.

GREAT WESTERN MALTING – Rye Malt (2.0-2.5°L)

Canadian-grown rye. Rye adds a dry, spicy note to beer. Best used in small quantities (less than 15%) to avoid gumming up your mash. If more rye is desired, use rice hulls to aid mash filtration.

THOMAS FAWCETT & SONS MALT - Rye Malt (2.5-3.0°L)

Will add a dry, spicy note to your finished beer. Best used in small quantities (less than 15%) to avoid stuck or trickle mash. If used in larger quantities, rice hulls can be added to the mash.

BRIESS MALTING – Rye Malt (3.7°L)

Rye malt contributes spicy malt complexity to beers of all styles.

THOMAS FAWCETT & SONS MALT - Crystal Rye (70-80°L)

Will lend a dry, licorice, toffee flavor. Great for use in complex, multi-grain brews where that extra special something is required.

THOMAS FAWCETT & SONS MALT – Roasted Rye (150-225°L)

Intensifies the roast character of dark beers. Lends a deep red to brown color and a sharp, bitter, dry, spicy, coffee flavor to Stouts. Adds a non-barley roast accent to your driest dark beers.

Other Grains

RICELAND – Rice Hulls (<1°L)

The addition of 10% rice hulls by weight will normally prevent stuck mashes. Rice hulls may bind your auger. They are best added at the mash tun and mixed well with the grist during mash-in.

GREAT WESTERN MALTING – Superior® Flaked Rice (<1°L)

Whole grain white rice is steamed and flattened and partially pre-gelatinized. Highly fermentable and used in craft-brewed versions of American Premium Lagers and American Light Lagers.

BRIESS MALTING – Insta Grains® Brown Rice Flakes (<1°L)

100% pre-gelatinized flaked brown rice. Highly fermentable and used in craft-brewed versions of American Premium Lagers and American Light Lagers.

GREAT WESTERN MALTING Superior® Oat Flakes (<1°L)

Aromatic oats are steel cut then steamed and flaked, resulting in 100% pre-gelatinized oat flake bits. Excellent oat aroma. Provides a silky texture to beer. Contributes to head retention and mouthfeel.

GRAIN MILLERS - Rolled Oats (<1°L)

Steamed and flattened oats are partially pre-gelatinized. Adds oat aroma and spiciness, body, and grain complexity. Contributes to head retention and mouth fullness. Use at 5-15 % of grist.

BRIESS MALTING – Insta Grains® Oat Flakes (<1°L)

100% pre-gelatinized flaked oats are smaller than whole kernel flaked oats.

BRIESS MALTING – Insta Grains® Yellow Corn Flakes (<1°L)

100% pre-gelatinized flaked yellow corn. Highly fermentable and used in Pre-Prohibition-style lagers and cream ales.

BEST MALZ - Spelt Malt (1.7-2.3°L)

An ancient variety of Bavarian wheat with long irregularly-shaped kernels. Contains higher protein but lower gluten than wheat malt. Provides a slightly sweet nutty, spicy flavor. Use like wheat malt.

THOMAS FAWCETT & SONS MALT - Oat Malt (1.9-2.3°L)

Adds silky thick texture and head retention. Better in darker beers because it can create chill haze. Use at a rate of 5-10%. Enhances body and flavor of Porters, Stouts and winter warmers.

Smoked Malts

Smoked malts are listed in increasing degree of smoke character.

BEST MALZ - Smoked Malt (2.0-3.5°L)

German malt smoked over Beechwood. Delivers the typical “Bamberg” rauch bier flavor. Contributes a clean, dry beechwood smoke character.

BRIESS MALTING – Smoked Malt (5.0°L)

Smoked over Cherry wood. More intense than Beechwood-smoked Rauch malt.

THOMAS FAWCETT & SONS MALT - Peated Malt (2-3°L) (10-14 ppm Phenol)

Produced by smoking pale malt over burning peat. Peated Malt will add a dark, earthy, phenolic aroma and flavor characteristic of Islay whisky.

BAIRD MALTING – Heavy Peated Malt (35-40 ppm Phenol)

Smoke from a peat fire is circulated through malt, where it is absorbed into the malt surface. Degree of peatiness (parts per million of phenol) is quite high. Usage is up to 1.5% at most.

Special Process Malts

BEST MALZ - Acidulated Malt (2.7-4.2°L).

Reduces the pH value of the wort, which results in improved mash enzyme activity and greater yield. Provides a rounder, fuller character, enhancing the flavor of Pilsners and other light lagers.

GAMBRINUS – Honey Malt (20-30°L)

Similar to German "brumalt." Stewed like a melanoidin malt and lightly cultured with lactobacillus. Provides slight acidity and a grassy/honey character. This unique malt adds complexity to beers.

--- THE END ---

Country Malt Group - COA Matrix

Updated: August 13, 2010

Below is a best-case scenario as the COAs were collected in 2010, from crop year 2009, which was a phenomenal crop year.

Below is the average malt analysis parameters for our malt, as per our Certificates of Analysis (COA). The acronyms

are as follows: MOIST=moisture. FGAI=fine grind as is. FGDB=fine grind dry basis. CGAI=course grind as is.

CGDB=fine grind dry basis. F/C Dif=fine/course difference. Color=Lovibond. DP=diastatic power.

Protein=protein. SolPro=soluble protein. S/T=ratio of soluble protein over total protein.

#	Malting Company	Malt Name	MOIST	FGAI	FGDB	CGAI	CGDB	F/C Dif	COLOR	DP	Protein	SolPro	S/T
1	GREAT WESTERN	Premium 2-Row Malt	4.0	77.8	81.2	77.0	80.4	0.8	2.0	135	11.4	5.0	43.9
2	GREAT WESTERN	Northwest Pale Ale Malt	4.0	77.8	81.0	76.9	80.2	0.9	2.9	138	12.2	5.8	47.6
3	GREAT WESTERN	Vienna Malt	4.3	77.2	80.7	76.4	79.8	0.8	3.8	128	12.4	5.8	47.5
4	GREAT WESTERN	Munich Malt	4.5	78.5	82.2	77.6	81.2	0.9	11.2	86	12.1	6.8	55.9
5	GREAT WESTERN	Crystal C15	7.8	74.0	80.3	NA	NA	NA	13.5	NA	NA	NA	NA
6	GREAT WESTERN	Crystal C30	6.4	74.9	80.0	NA	NA	NA	30.6	NA	NA	NA	NA
7	GREAT WESTERN	Crystal C40	6.1	75.3	80.2	NA	NA	NA	40.3	NA	NA	NA	NA
8	GREAT WESTERN	Crystal C60	5.4	75.8	80.1	NA	NA	NA	59.9	NA	NA	NA	NA
9	GREAT WESTERN	Crystal C75	4.8	75.8	79.8	NA	NA	NA	73.9	NA	NA	NA	NA
10	GREAT WESTERN	Crystal C120	3.5	76.1	78.8	NA	NA	NA	114.5	NA	NA	NA	NA
11	GREAT WESTERN	Crystal C150	3.3	75.7	78.3	NA	NA	NA	150.8	NA	NA	NA	NA
12	GREAT WESTERN	Wheat Malt	4.5	82.4	86.3	81.6	85.4	0.9	3.8	154	11.2	6.1	53.9
20	GREAT WESTERN	Organic 2-Row	4.2	77.8	81.2	77.0	80.4	0.8	2.0	135	11.4	5.0	43.9
21	GREAT WESTERN	Organic Munich	4.5	78.5	82.2	77.6	81.2	0.9	11.2	86	12.1	6.8	55.9
22	GREAT WESTERN	Organic Crystal C15	7.8	74.0	80.3	NA	NA	NA	13.5	NA	NA	NA	NA
23	GREAT WESTERN	Organic Crystal C40	6.1	75.3	80.2	NA	NA	NA	40.3	NA	NA	NA	NA
24	GREAT WESTERN	Organic Crystal C60	5.4	75.8	80.1	NA	NA	NA	59.9	NA	NA	NA	NA
25	GREAT WESTERN	Organic Wheat	4.5	82.4	86.3	81.6	85.4	0.9	3.8	154	11.2	6.1	53.9
38	CANADA MALTING	Superior Pilsen Malt	4.0	78.6	82.3	77.3	80.9	1.4	1.5	125	10.4	4.3	40
42	CANADA MALTING	Distiller's Malt	5.7	76.4	81.0	75.8	80.4	0.6	1.7	250	13.3	6.4	48.0
43	CANADA MALTING	Rye Malt	5.0	82.9	87.6	80.7	85.3	2.3	2.3	126	10.7	6.0	55.7
45	CANADA MALTING	Munich	3.4	78.4	81.2	NA	NA	1.1	10.0	104	12.1	6.1	50.1
56	BAIRD MALTING	Pilsen	4.4	NA	82.0	NA	80.9	0.7	1.9	115	10.0	0.7	40.2
57	BAIRD MALTING	Maris Otter Malt	3.6	NA	82.3	NA	81.1	1.5	2.9	73	9.4	4.0	42.9
58	BAIRD MALTING	Pale Ale Malt	3.9	79.5	82.6	NA	81.4	1.3	2.6	79	9.4	4.0	42.8
60	BAIRD MALTING	Munich	3.3	NA	82.1	NA	NA	NA	4.7	NA	9.6	4.0	41.6
62	BAIRD MALTING	Carastan 30/37	5.1	74.3	79.7	NA	NA	NA	35.0	NA	NA	NA	NA
63	BAIRD MALTING	Crystal 50/60	4.2	75.2	78.2	NA	NA	NA	56.0	NA	NA	NA	NA
64	BAIRD MALTING	Crystal 70/80	4.3	75.0	78.3	NA	NA	NA	74.3	NA	NA	NA	NA

65	BAIRD MALTING	Crystal 135/165	3.3	76.1	78.9	NA	NA	NA	NA	148	NA	NA	NA	NA
66	BAIRD MALTING	Brown	2.3	75.3	77.0	NA	NA	NA	NA	60.3	NA	NA	NA	NA
67	BAIRD MALTING	Chocolate	2.8	70.7	72.7	NA	NA	NA	NA	500.0	NA	NA	NA	NA
68	BAIRD MALTING	Black Malt	2.8	196	67.2	NA	NA	NA	NA	583.0	NA	NA	NA	NA
69	BAIRD MALTING	Roasted Barley	2.3	71.1	72.8	NA	NA	NA	NA	600.0	NA	NA	NA	NA
76	BEST MALZ	Pilsen	4.5	NA	82.0	NA	NA	NA	1.1	1.8	NA	10.2	4.0	39.1
77	BEST MALZ	Vienna	4.2	NA	81.7	NA	NA	NA	1.1	4.0	NA	10.0	4.1	41.4
78	BEST MALZ	Munich	3.4	NA	80.1	NA	NA	NA	1.2	6.0	NA	10.1	4.3	42.5
79	BEST MALZ	Dark Munich	3.5	NA	81.9	NA	NA	NA	1.5	10.0	NA	10.7	4.4	41.0
80	BEST MALZ	Melanoidin Malt	3.5	NA	80.0	NA	NA	NA	NA	25.0	NA	10.1	4.0	39.2
81	BEST MALZ	Caramel Pils	3.5	NA	80.4	NA	NA	NA	NA	2.3	NA	10.5	NA	NA
84	BEST MALZ	Wheat Malt	4.4	NA	84.8	NA	NA	NA	1.9	2.0	NA	10.9	4.3	39.1
85	BEST MALZ	Dark Wheat Malt	3.9	NA	85.0	NA	NA	NA	1.7	6.5	NA	11.9	5.1	42.7
86	BEST MALZ	Spelt Malt	4.6	NA	83.3	NA	NA	NA	2.3	1.7	NA	14.0	4.7	33.6
87	BEST MALZ	Smoked Malt	4.4	NA	80.0	NA	NA	NA	NA	2.7	NA	11.3	NA	NA
88	BEST MALZ	Acidulated Malt	5.9	NA	78.8	NA	NA	NA	NA	3.4	NA	11.0	NA	NA
95	FRANCO BELGES	Pilsen	3.9	NA	82.6	NA	NA	NA	1.2	1.7	NA	10.2	4.2	41.2
96	FRANCO BELGES	Pale Ale	4.1	NA	83.2	NA	NA	NA	0.9	2.1	NA	9.5	4.2	44.2
97	FRANCO BELGES	Vienna	3.4	NA	81.7	NA	NA	NA	1.7	3.2	NA	10.5	4.8	46.0
98	FRANCO BELGES	Special Aromatic	2.8	NA	83.2	NA	NA	NA	1.1	4.2	NA	9.6	4.1	42.7
99	FRANCO BELGES	Munich	2.4	NA	81.3	NA	NA	NA	1.2	6.7	NA	9.9	4.4	44.4
100	FRANCO BELGES	Dark Munich	2.8	NA	80.6	NA	NA	NA	1.3	12.3	NA	11.3	4.6	40.4
101	FRANCO BELGES	Caramel Pilsen	5.7	NA	79.5	NA	NA	NA	NA	9.7	NA	NA	NA	NA
102	FRANCO BELGES	Caramel Vienna	5.5	NA	79.5	NA	NA	NA	NA	20.0	NA	NA	NA	NA
103	FRANCO BELGES	Caramel Amber	5.8	NA	78.8	NA	NA	NA	NA	30.5	NA	NA	NA	NA
104	FRANCO BELGES	Caramel Munich 40	5.0	NA	76.8	NA	NA	NA	NA	41.3	NA	NA	NA	NA
105	FRANCO BELGES	Caramel Munich 60	4.4	NA	79.6	NA	NA	NA	NA	58.6	NA	NA	NA	NA
106	FRANCO BELGES	Caramel Munich 80	3.3	NA	77.4	NA	NA	NA	NA	78.5	NA	NA	NA	NA
107	FRANCO BELGES	Caramel Munich 120	2.7	NA	77.1	NA	NA	NA	NA	116.1	NA	NA	NA	NA
108	FRANCO BELGES	Wheat Malt	5.0	NA	85.7	NA	NA	NA	NA	1.9	NA	NA	NA	NA
109	FRANCO BELGES	Caramel Wheat	4.5	NA	81.4	NA	NA	NA	NA	41.4	NA	NA	NA	NA
110	FRANCO BELGES	Kiln Amber	1.7	NA	78.7	NA	NA	NA	NA	18.2	NA	NA	NA	NA
111	FRANCO BELGES	Kiln Coffee	1.8	NA	78.5	NA	NA	NA	NA	169.5	NA	NA	NA	NA
112	FRANCO BELGES	Chocolate	1.8	NA	74.0	NA	NA	NA	NA	347.2	NA	NA	NA	NA
113	FRANCO BELGES	Kiln Black	1.9	NA	77.9	NA	NA	NA	NA	508.8	NA	NA	NA	NA
120	THOMAS FAWCETT	Maris Otter	3.4	NA	NA	NA	80.1	NA	9.3	2.1	73	9.0	3.6	40.0
121	THOMAS FAWCETT	Golden Promise	3.7	NA	NA	NA	80.3	NA	1.0	2.1	85	9.4	3.6	38.6
126	THOMAS FAWCETT	Pale Crystal	3.2	NA	NA	NA	71.4	NA	NA	21.0	NA	11.0	NA	NA

PNWHC - Specialty Malt for Brewers - Quiz Answers:

1. How does a grain become malt? A: **Germinated (sprouted) and dried.**
2. Which grain is most often malted? A: **Barley.**
3. Name 2 reasons why barley malt is most popular for beer. (6 were given.)
 - a. **Enzymes | Starches | Color | Flavor | Aroma | Husk.**
4. Name 4 malted grains. (10 were given.)
 - a. **Barley | Rye | Wheat | Spelt | Oats | Triticale | Millet | Buckwheat | Corn | Rice**
5. Name 2 families of malt & grains used in brewing. (5 were given.)
 - a. **Base Malt | Stewed Malt | Wet-Roasted/Crystals | Dry-Roasted | Miscellaneous.**
6. Name 1 of the minimum requirements need to malt a grain. (3 were given.)
 - a. **Viable grain kernel | water | oxygen.**
7. Name 1 of the stages of malting a grain. (3 were given.)
 - a. **Steeping | Germination | Kilning**
8. Which of those 3 takes the longest amount of time? A: **Germination.**
9. True or False: The purpose of Steeping is to start brewing the beer.
 - a. **False: The purpose of Steeping is to hydrate the grain so it can get ready to grow.**
10. True or False: The purpose of Germination is to replicate the best field growing conditions so that the kernel begins to grow into a plant. A: **True.**
11. What are Helices, and what important job do they do during Germination?
 - a. **They turn the malt so the rootlets don't get entangled.**
12. New vocabulary word: Kilning dries the malt until it becomes friable. What is the meaning of the word friable?
 - a. **Friable means breakable or crushable, so brewers can mill the grain easily.**
13. What does the term DP stand for? A: **Diastatic Power.**
14. True or False: Roasted Barley is a type of malt?
 - a. **False. Roasted Barley is not malted prior to roasting.**
15. Barley is the only commodity grain that must be kept alive. Why is that important?
 - a. **If barley cannot be germinated during malting, it is considered nonviable (dead). It is therefore not malting grade barley and must be sold as animal feed. That lowers the sale price to the farmer as the price of feed grade malting barley is on par with GMO corn and Corn Ethanol Plant waste byproducts.**
16. Every barley farmer could also potentially grow what other crops. (3 were listed.)
 - a. **Wheat, corn or canola (oil).**
17. How many malt roasters are located in North America? A: **Two: Great Western & Briess.**
18. What is the definition of beer?
 - a. **Beer is a fermenting or fermented grain-based beverage.**
19. Name 3 of the Pillars of Beer Flavor? (4 were listed.)
 - a. **Malt, hops, yeast and water/adjunct/process/etc.**
20. Name 1 flaw that would cause a barley field to be downgraded to Feed Barley? (10 were listed)
 - a. **High protein, low diastatic power, overly long dormancy, dead kernels or loss of viability, weather damage, disease damage, pest damage, high inclusions of weed seeds or non-barley seeds, small kernel size, or low carbohydrate level.**
21. True or false: Higher protein in barley delivers the lowest color malt.
 - a. **False. Protein is a color driver. Higher protein delivers higher colored malt.**
22. True or false: Beer is most often made from barley?
 - a. **False: Beer is made from malt. It cannot be made from barley without added enzymes.**
23. Bonus Question: What year was Maris Otter introduced? A: **1966** The End ☺