

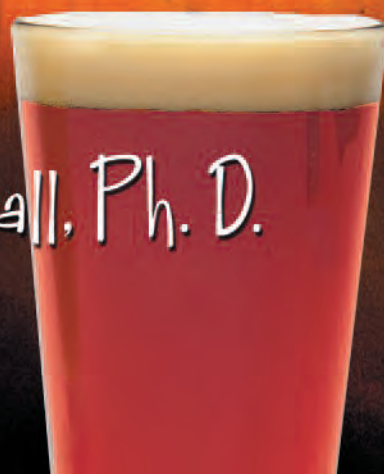


The  
Green,

The  
Red,

And The  
Spicy

by Michael L. Hall, Ph. D.





# Hot chile finds its way into beer and more in New Mexico



**C**hile! In beer? Nothing strikes more fear into the hearts of beer judges than the words *chile beer*. “That one will definitely have to be judged last in the flight—wouldn’t want to ruin our palates, would we?”

What would possess a brewer to deliberately put hot chile peppers into a perfectly good beer, and why would anyone drink it? Let’s peel this chile and see.


## Why Brew with Chiles?

In New Mexico, where the official state question is “red or green?” it’s just natural to want to put chile in beer. Red or green refers to your choice of chile to be slathered on top of your meal. Appropriate answers also include “Christmas,” in

which case you receive both. New Mexican cuisine constitutes an homage to the chile plant, with dishes such as *carne adovada* (hunks of pork stewed in red chile sauce), *chile re-lLENos* (whole green chiles stuffed with cheese, battered and deep fried) and *huevos rancheros* (a fried egg or two served on a blue corn tortilla, smothered in red or green chile), to say nothing of the more pedestrian enchiladas, tamales, burritos and tacos.

“Chile,” by the way, is the preferred spelling in New Mexico. “Chili” is that eastern/Texan concoction of tomatoes, beans and meat, and “chilli” is the spice powder mixture that contains ground chile and other things like cumin. Sure, chili is good in its own right, but that’s not what we’re talking about.





# Scoville Ratings By Chile Type

Pepper Type	Scoville Units		Color
	Min	Max	
Pure capsaicin		16,000,000	
Habañero	95,000	577,000	Orange
Scotch Bonnet	100,000	350,000	Red/Yellow
Jamaican Hot	100,000	200,000	Red
Thai	50,000	350,000	Red
Chiltepín	50,000	100,000	Red-orange
Pequín	30,000	85,000	Red
Cayenne	30,000	125,000	Red
Tabasco	15,000	50,000	Red
Serrano	5,000	50,000	Red
Chile de Arbol	15,000	30,000	Red
Chipotle	5,000	10,000	Black
Jalapeño	2,500	8,000	Green
Guajillo	1,500	5,000	Green
Mirasol	1,500	5,000	Red
Pulla	700	5,000	Red-purple
New Mexican	100	5,000	Red/Green
NM: Española Improved	2,500	5,000	Red/Green
Cochiti	2,500	5,000	Red/Green
Cherry	100	3,500	Red
Rocotillo	1,500	2,500	Red
NM: Sandia	500	2,500	Red/Green
NM: Chimayó	1,500	2,500	Red/Green
Pasilla	1,000	2,500	Black
Cascabel	1,000	2,500	Black
Numex Big Jim	500	2,500	Red/Green
Anaheim	500	2,500	Red/Green
NM: Jemez	1,500	2,000	Red/Green
NM: Española	1,000	2,000	Red/Green
Ancho	1,000	2,000	Purple-black
Poblano	1,000	2,000	Green
Pepperoncini	200	1,000	Red/Green
Bell Pepper	0	600	Red/Green/Yellow/Orange
Paprika, Pimento	0	500	Red
Sweet Italian	0	100	Red/Green

More acres of chile are grown in New Mexico than in all the other states combined, and more chiles are consumed in New Mexico per capita than in any other state. You might think it's the pain-killing endorphins produced by the brain that nullify a burning tongue and keep people coming back for more, and you wouldn't

be completely wrong. But New Mexicans are quick to tell you that it is also the flavor of the chile that they crave. I guess there is no simple explanation for the desire to infuse beer with chile except for the uncontrollable urge to put chile into everything. All that is left is to determine how to do it well.

## Drinking Chile Beer

When is the best time to drink a chile beer? A tall, cold, spicy one goes naturally with New Mexican food, blending with and accenting the southwestern flavors. You might think chile beer is merely a novelty for the tourists, but the locals buy it by the pitcher to drink with chips—no salsa necessary.

Chile beers vary greatly in flavor and heat. Some are so mild that only the chile flavor comes through, such as Rio Grande Brewing's golden Pancho Verde Chile Cerveza, which has won Great American Beer Festival® medals. Others are so hot that a sip will make your buds think that the barn is on fire and there's not a bucket of water in sight. Personally, I prefer a beer with lots of chile flavor and a smooth burn that builds and lets you know the chile is there without making you want to cut out your own tongue. There is even some variation in the way the burn comes through: some chile beers have an afterburn in the back of your throat after you swallow, others have a sneaky, slow-growing burn that is only evident after a half pint or so.

The color characteristics of chile beers are strangely consistent, as if New Mexican brewers had subconsciously followed the prescriptions of Belgian monks. Green chile beers are usually pale, with either a wheat beer or pale ale as a base, but red chile beers are usually a variation on the brown ale theme.

Chile beers uniformly have poor head retention because of the chile's oils. Often pale chile beers will show a haze, but this depends on how the peppers were added and whether or not the beer was filtered. A good chile beer will have a prominent chile aroma, but common flaws include a vegetable smell and/or a sour taste, depending on the way the chiles were processed. You can choose to enhance the pleasant aromas of smokiness (from the roasting process), earthiness and roasted grain in chile beers as well.

## Chile Characteristics

The genus *Capsicum* is comprised of various peppers, from the innocuous green bell pepper and pimento to the searing Scotch bonnet and habañero. Columbus was the one who started the confusion

CHILE PEPPER PHOTOS © 2002 PHOTODISC  
AND THE CHILE PEPPER INSTITUTE.  
BEER PHOTO BY BOB GOLDMAN

# Eske's Taos Green Chile Beer

Brewed by Steve Eskeback at Eske's Brewpub in Taos, N.M., and winner of the bronze medal in the Fruit and Vegetable Beer category at the 1993 Great American Beer Festival®.

For 5 U.S. gal (19 L)

- 7.0 lb (3.2 kg) pale ale malt
- 1.0 lb (0.45 kg) malted wheat
- 0.5 oz (14 g) Chinook hops, 13.2% AA (90 min)
- 0.5 oz (14 g) Chinook hops, 13.2% AA (60 min)
- 1.0 oz (28 g) Cascade hops (finish)
- 1.0 lb (0.45 kg) fresh roasted New Mexico green chiles

Wyeast No. 1187 Ringwood ale yeast

- OG: 1.039–1.041
- FG: 1.008–1.010

## Brewer's Specifics

Conduct a short (five to 10 minute) protein rest at 122°F (50°C) then saccharification rest at 150°F (66°C) for 10 to 15 minutes followed by a rest at 158°F (70°C) until conversion is complete. Eskeback uses Sandia chiles from Taos Chile Brothers Roasting Co. Put fresh roasted green chiles (unpeeled) in a grain bag and add to the beer after fermentation (think dry-hopping with chile). Leave beer in contact with the chiles for a week, then squeeze the bag and remove.

with pepper when he mistakenly thought that he had discovered the black pepper plant (true pepper is *Piper nigrum*, and is not related to the chile).

The defining characteristic of hot chiles is the chemical 8-methyl-N-vanillyl-6-nonenamide, also known as capsaicin. The heat intensity of a particular chile can be measured by the amount of capsaicin present. One popular method is the Scoville Rating System, where one part per million of capsaicin equals 16 Scoville units. New Mexico chiles, both green and red, range from 100 to 5,000 Scoville units, jalapeños vary from 2,500 to 8,000 Scoville units and habañeros burn up the charts with up to 577,000 Scoville units. Thus, New Mexican chiles are by no means the hottest, but many consider them to be among the most flavorful. See sidebar for a comparison of chile pepper heat ratings.

New Mexican chile beers are most commonly made with—surprise—New Mexican green and red chiles. The chiles come from the same plant, but are picked at different stages of maturity. Green chiles, the

Green chiles, the younger fruits, are flame-roasted until the skin is blistered and blackened. The aroma of freshly roasted chiles from street-side vendors is a familiar autumn experience that draws customers like moths to a flame.

younger fruits, are flame roasted until the skin is blistered and blackened. The aroma of freshly roasted chiles from street-side vendors is a familiar autumn experience that draws customers like moths to a flame. The vendors, many of whom are local chile farmers, roast them in large metal mesh drums that rotate to keep the peppers from scorching over the propane flame.

After roasting, the chiles are put into plastic bags to “sweat,” which helps to

# Mike's Green Chile Mead

For 5 U.S. gal (19 L)

- 15 lb (6.8 kg) Clover honey
- 1 lb (0.45 kg) fresh roasted New Mexican green chiles, unpeeled
- 2 packages Lalvin K1V-1116 (Montpelier) yeast

- OG: 1.115

## Brewer's Specifics

Add water, honey and chiles. To pasteurize, hold at 170°F (77°C) for 30 minutes. Cool and pitch the hydrated yeast. Rack off the chiles after fermentation activity dies down, usually about a month.



loosen the skin. Once cooled, you can peel and freeze chiles, or leave the skin on for removal later. Green chiles freeze well, and frozen chiles are preferred to canned ones, which often have acidic overtones. Green chiles come in varieties carefully bred and crossbred through the years. Varieties include New Mexico No. 6, Española, Chimayó, Sandia and the popular Numex Big Jim.

Red chiles are the mature fruits of the same plant, and are typically used in a dried form. The whole chiles often are strung closely together to form a *ristra*, which serves as both chile storage and decoration. You can pluck dried whole red chiles right off the *ristra* and reconstitute as needed. The dried chiles also can be ground to make red chile powder.

## The Green

Steve Eskeback, who has been brewing green chile beers since before 1989 when he won the best of show prize at the New Mexico State Fair with one, believes that a lighter beer is necessary to show off the flavors of the green chile. He originally started out with Charlie Papazian's recipe for "High Velocity Weizen," but like any brewer, he eventually made some modifications.

Of course, the biggest change he made was adding green chiles. After some experimentation, he found he could achieve consistent flavor by "dry-hopping" with green chiles—that is, adding the peppers after the beer is finished fermenting. Eskeback puts the chiles in a grain bag for easy removal; contact time is limited to about a week. Scott Moore and Andrew Leith at Rio Grande Brewing Co. in Albuquerque use a similar method to insinuate green chile into their beer, and then they filter to get a crystal clear finished product.

You have several choices when it comes to chiles for brewing. Hands down, the best kind of green chile to use is fresh roasted. Don't bother peeling the pods—the roasted skins contribute a smoky flavor to the brew. Second best is roasted chile that you've purchased from a street vendor and frozen. In fact, frozen fresh-roasted chiles may even be preferred because freezing breaks the cell walls in the chile, which releases more pepper

essence. If you can't get roasted green chile from a neighborhood vendor, a convenient substitute is commercially frozen chopped green chiles—in New Mexico everyone uses Bueno ([www.buenofoods.com](http://www.buenofoods.com)). As a last resort use canned green chiles. Although they are more readily available, they sometimes have a disagreeable acidic flavor.

When working with chiles, it is a good idea to wear gloves to protect your hands from the capsaicin, and be sure not to touch your eyes or other sensitive areas. The oil will burn.

## The Red

Dark beers with some residual sweetness seem to stand up better to red chile flavors. Brandon Santos at the Embudo Station Brewpub uses a brown ale for his base beer, and Guy Ruth of Dry Gulch Brewpub in Albuquerque has experimented with Scotch ales and bocks—even doppelbocks—as the base beer.

Red chile beers make use of the dried form of the chile. You can get whole chile pods separately, or pull one off a chile *ristra*. The dried chile is usually reconstituted in some manner for cooking, but that is not necessary when adding it directly to beer. Cut the chile into small pieces or crush it by hand, then put it directly into the beer. Ruth uses the "dry-hopping" method and leaves the chiles in the beer for about two weeks. Santos puts the chiles into the boiling kettle and sparges the hot wort on top of them—first-wort chiles! The chiles get boiled with the hops and strained out at the end of the boil, which allows for a more complete removal that may improve chill (chile?) haze.

It is also important to use good quality chiles to start with—I recommend using whole dried New Mexican red chiles. If you can't get them locally, there are a few places to mail order a *ristra*, including [www.ChileTraditions.com](http://www.ChileTraditions.com). You might even be able to make a beer with red chile powder, but that could cause sparging problems depending on your set-up.

## The Spicy

Many other chiles can be used in beer, including the small but potent pequin, the

# Rio Grande Green Chile Beer

Brewed by Brandon Santos at Embudo Station Brewpub, Embudo Station, N.M.

For 5 U.S. gal (19 L)

7.75 lb (3.5 kg) Great Western two-row malt

1.25 oz (35 g) Mt. Hood hops, 3.8% AA (60 min)

1.50 oz (43 g) Mt. Hood hops, 3.8% AA (30 min)

5–10 whole fresh roasted New Mexican green chiles (extra hot)

Wyeast No. 1007 German ale yeast

- OG: 1.040
- FG: 1.008

### Brewer's Specifics

Strike at 155° F (68°C), add heat as necessary to maintain this temperature. Mash out at 168° F (76° C) after starch conversion is complete.

Put roasted, whole, unpeeled green chiles into the brew kettle while sparging (as you would with first-wort hops), boil the chiles with the wort, strain out with the hops at the end of the boil. No finishing hops.



fiery jalapeño and the serrano, a slightly milder and meatier substitute for the Thai dragon. Many chiles are higher on the Scoville scale than New Mexican chiles, so dramatically scale back the amounts used in recipes unless you are trying to create a universal solvent.

Ancho and pasilla chiles have flavors reminiscent of raisins; habañeros have a very fruity, apricot-like flavor; and chipotles (ripe red smoked jalapeños) offer a smoky overtone.

In addition to the dry- and first-wort “hopping” techniques, you can slice and insert smaller chiles into individual bottles at bottling time. Doing this allows experimentation with just a few bottles, but can lead to long contact times and very hot beer. If you are faced with a too-fiery beer, dilute with more beer.

## Chile Mead

Being a meadmaker living in New Mexico, I decided that I needed to make a green chile mead. I pasteurized the green chiles along with the honey-water must and left them in the fermenter until the first racking. There was no need to add yeast nutrients because the chiles provided them. I then followed my usual technique for a sweet still mead: add part of the honey, ferment until dry, add sodium benzoate to kill the yeast, add remaining honey, rack between the steps.

The resultant mead was sweet, with lots of green chile flavor and a slight, building burn in the back of the throat. I considered it to be a metheglin rather than a melomel because the chiles added little or no fermentables and effectively played the role of a spice. The sweetness provided a good balance for the heat, but not enough for some of my friends.

## Afterburn

Brewing with chile peppers adds an interesting dimension to your beers and meads. Use fresh ingredients whenever possible, make a good underlying beer and go easy on the heat to ensure a concoction that will have everyone coming back for more.



# Ristra Red Chile Beer

Brewed by Brandon Santos at Embudo Station Brewpub, Embudo Station, N.M.

**For 5 U.S. gal (19 L)**

- 7.25 lb (3.3 kg) Great Western two-row malt
- 0.5 lb (227 g) Great Western Carastan malt
- 0.5 lb (227 g) crystal malt (17 L)
- 1.5 oz (43 g) chocolate malt
- 0.75 oz (21 g) Cascade hops, 4.9% AA (60 min)
- 1.25 oz (35 g) Cascade hops, 4.9% AA (30 min)
- 5 whole dried red chiles from a ristra, crushed by hand
- 1 whole dried red pequin chile, crushed by hand (optional for extra heat)
- Danstar Nottingham ale yeast

- OG: 1.044
- FG: 1.016

**Brewer's Specifics**  
Strike at 155°F (68°C), add heat as necessary to maintain temperature. Mash out at 168°F (76°C) after starch conversion is complete. Put crushed, dried red chiles into the brew kettle while sparging (as you would with first-wort hops), boil the chiles with the wort, strain out with the hops at the end of the boil. No finishing hops. The yeast has only a medium attenuation, which leaves the beer with the desired sweetness.

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- Michael L. Hall, Ph.D., is a computational physicist at Los Alamos National Laboratory in New Mexico. A member of the American Homebrewers Association board of advisers, he also brews a mean pot of green chile stew, which, of course, would go nicely with a tall, cold chile beer.** 🍷