

Cactus IFT

A professional group of IFT members in Arizona seeking to advance the science and technology of food through exchange of knowledge

A Quarterly Newsletter

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Chair's Message

With the holiday season in full swing, it's a hectic but fun-filled time of shopping, travel and family gatherings with most all of it involving... food!

And what better way to enjoy food than with a glass of a wine, right?



Your Cactus Section is excited to be hosting a special wine tasting on December 6th, presented by the experts at E&J Gallo. Marie Shubin, Director of Consumer Affairs and Jennifer Jo Wiseman, VP Consumer and Product Insights are coming to us all the way from Modesto, CA and will be talking about the science, nature and art of winemaking with a presentation specially directed at our unique group of food science professionals.

In addition to the wine tasting experts, Sharon Kneebone and Anna Kakos from the national IFT office are visiting to share with us the many benefits of IFT membership. Their visit comes soon after we were featured as the Section of the Month for October, so we're excited to hear and talk about how we can continue to make the most of our membership.

Looking ahead for the coming year, your Board is working to create more opportunities for us to get together, network and share information about our profession. We're planning to host several events revolving around a diverse set of topics, and to continue to reach out to local professional and academic groups that we can collaborate with. So if you have any ideas or areas of interest to include in the discussion, be sure to let us know!

Meanwhile, stay tuned for what looks to be a great 2012 for the Cactus Section. Have a Happy and Safe Holiday Season and a Wonderful New Year!

— Tony DeCastro, Cactus IFT Section Chair



The Art of Wine Tasting

Do you have what it takes to be a wine snob? Don't miss our wine tasting hosted by E&J Gallo on December 6.



Hopping Hand-crafted Beer

Touring Arizona's fastest-growing brewery

More and more Arizonans are raising their glasses with craft beer brewed right in Downtown Chandler.

In the last few years, SanTan Brewing Company has expanded into restaurants and grocery stores across The Valley.

The secret to this local brewery's success amidst a tough recession? "We are a small-scale, hands-on brewery," said brewmaster Patrick Ware to Cactus IFT members on August 25, 2011.

He explained that at the brewery's core is a mission intended by its founder and owner Anthony Canecchia to create a company dedicated to the culture of "hand-crafted beer for pairing with craft food and the art of great conversation."

Conversation is what Ware had plenty of while giving a brewery tour to curious Cactus IFT members who riddled him with questions about the company's beer-making process (see Page 3) and packaging capabilities.

Ware handled each of the questions with ease including ones about malt buying, fermentation vessels, hops straining, and alcohol percentage. He also addressed how the brewing process differs to produce a variety of beer flavors.

After the tour, Ware guided a beer-tasting and taught Cactus IFT members how to properly pair the company's signature craft brews with foods.

According to Ware, the company's wildly popular citrus-hop-balanced-with-caramel-malt Devil's Ale lives up to its name paired with bacon. Another favorite, the intense HopSchock IPA goes down nicely when paired with blue cheese.

"The strong flavors don't compete but dance on the tongue," Ware said.

The more light-bodied SunSpot Gold didn't disappoint when paired

with a chicken taco and there was little question that nutty caramel toasted-malt Epicenter Amber Ale complemented a cheeseburger. The German wheat beer, Hefewizen, required cheese to balance its sweet banana clove flavor. And lastly, the roasted coffee Gordo Stout served on nitrogen could only be perfected with dark chocolate.

As the night went on, the pleasures of good food and drink were only accentuated with lively discussion and networking of Cactus IFT members.

— David Despain



Cactus IFT members enjoy a beer tasting presentation along with several different craft beers paired with craft foods.

Brewing Explained

Shared by brewmaster Patrick Ware, selected from <http://everything.explained.at/brewing/>

All beers are brewed using a process based on a simple formula. Key to the beer-making process is malted grain, depending on the region, traditionally barley, wheat, or sometimes rye.



Brewmaster Patrick Ware

Malt is made by allowing a grain to germinate, after which it is then dried in a kiln and sometimes roasted. The germination process creates a number of enzymes, notably alpha-amylase and beta-amylase, which will be used to convert the starch in the grain into sugar. Depending on the amount of roasting, the malt will take on dark color and strongly influence the color and flavor of the beer. Breweries buy malt and this is not a process that is done in-house.

The malt is crushed in a malt mill to break apart the grain kernels, increase their surface area, and separate the smaller pieces from the husks. The resulting grist is mixed with heated water in a vat called a "mash tun" for a process known as "mashing". During this process, natural enzymes within the malt break down much of the starch into sugars which play a vital part in the fermentation process.

Mashing usually takes 1 to 2 hours, and during this time various temperature rests (waiting periods) activate different enzymes depending upon the type of malt being used, its modification level, and the desires of the brewmaster. The activity of these enzymes convert the starches of the grains to dextrins and then to fermentable sugars such as maltose.

A mash rest at 104 °F or 40 °C activates beta-glucanase, which breaks down gummy beta-glucans in the mash, making the sugars flow out more freely later in the process. A mash rest from 120 °F to 130 °F (49 °C to 55 °C) activates various proteinases, which break down proteins that might otherwise cause the beer to be hazy. But care is of the essence since the head on beer is also composed primarily of proteins, so too aggressive a protein rest can result in a beer that cannot hold a head. This rest is generally used only with undermodified (i.e. undermalted) malts which are popular in Germany and the Czech Republic, or non-malted grains such as corn and rice, which are widely used in North American beers.

A mash rest temperature of 149 to 160 °F (65 to 71 °C) is used to convert the starches in the malt to sugar, which is then usable by the yeast later in the industrial brewing process. Doing the latter rest at the lower end of the range produces more low-order sugars which are more fermentable by the yeast. This in turn creates a beer lower in body and higher in alcohol. A rest closer to the higher end of the range creates more higher-order sugars which are less fermentable by the yeast, so a fuller-bodied beer with less alcohol is the result.

Finally the mash temperature may be raised to 165 °F to 170 °F (about 75 °C) (known as a mashout) to deactivate enzymes. Additional water may be sprinkled on the grains to extract additional sugars (a process known as *sparging*).

After the mashing, the mash is pumped to a lauter tun where the resulting liquid is strained from the grains in a process known as lautering. The lauter tun generally contains a slotted "false bottom" or other form of manifold which acts as a strainer allowing for the separation of the liquid from the grain.

At this point the liquid is known as wort. The wort is moved into a large tank known as a "cooking tun" or kettle where it is boiled with hops and sometimes other ingredients such as herbs or sugars. The boiling process serves to terminate enzymatic processes, precipitate proteins, isomerize hop resins, concentrate and sterilize the wort. Hops add flavor, aroma and bitterness to the beer. At the end of the boil, the hopped wort settles to clarify by use of a whirlpool system for hop separation.

The wort is then moved into a temperature controlled cylindrical-conical "fermenter" where yeast is added or "pitched" with it. The yeast converts the sugars from the malt into alcohol, carbon dioxide and other components through a process called fermentation or glycolysis.

After a week to three weeks, the fresh (or "green") beer is cooled close to freezing temperature, yeast is purged and the beer is allowed to "lager" or rest. After this conditioning for a week to several months, the beer is often filtered to remove remaining yeast and particulates. The "bright beer" is then ready for serving or packaging.



Patrick Ware discusses the making of quality craft beer and how it's packaged and distributed around The Valley during Cactus IFT's tour of SanTan Brewing Company.

Important Dates and Contacts

Please be sure to join us at the following events. They are not only informative, but also give you a chance to rub shoulders with other people involved in the food industry or affiliated industries. And, lastly, they are designed to be a lot of fun.

6 December 2011

E&J Gallo is coming from Modesto, CA to teach us the art of tasting wine.

Wine blends science, nature and the art of the winemaker. Don't make hit and miss selections anymore. Discover the nuances of wine! Learn about what you like, why you like it and how to choose wine that you will enjoy every time. This fantastic program has been prepared specifically for our group and will be presented by E&J Gallo's Marie Shubin, Director of Consumer Affairs and Jennifer Jo Wiseman, VP Consumer and Product Insights.

*Date: Tuesday, December 6
Time: 5:30-8 pm*

*Location: Fiesta Resort
Conference Center
2100 South Priest Drive
Tempe, AZ 85282*

Cost: \$40 for Members & Guests (includes dinner, wine tasting and lecture); \$10 for students

February and May 2012

Please stay tuned for announcements about upcoming events. We enthusiastically invite your event ideas, discussion topics, and/or anything else that you feel could help us enhance your membership.

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Got something interesting to say?

If it is something you feel your fellow Cactus IFT members would appreciate, then we'd love to publish it in this newsletter.

Simply, send an email with your article topic idea to David Despain, newsletter committee chair, at daviddespain@gmail.com.

We will certainly welcome any originally written material you'd like to share related to our region and food, food science, food technology, or the food industry.

Feel free to also send material about different learning experiences you've had in the food industry. Lastly, we are also interested in your stories as you enjoy our events. The more you share, the better -- so don't be shy!

Please be advised that we cannot publish any content that could be regarded as promotional material offering products or services, although we are definitely interested in sharing your hiring opportunities.

— David Despain

Section Officers

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