

# Down to a science

Jabin Kirk brings his love for beer and science together to create home brews

**J**abin Kirk's journey into the world of home-brewed beer started in 2002 when he was at university. He lived in a shared house with three other guys, and one of their dads was into home brewing. This sparked their interest, as did the fact that they were broke college students.

"We made terrible beer, I must say," Jabin said. "I think we had the odd one that turned out to be sort of okay, but most of them were pretty bad. We had no idea what we were doing."

Since then, Jabin's passion and experience for creating home-brewed beer has only grown. At the end of 2006, he moved away from university with his then girlfriend, who is now his wife. This left him without a home brewing setup. That year for his birthday his girlfriend got him some basic equipment. He brewed up a batch of beer, just the same as they always had.

"It turned out pretty much as ordinary as all the other previous batches that we had made, and I remember thinking that there has got to be a better way of doing this," Jabin said.

Jabin, a senior engineering systems specialist at Cook Australia, did



▲ Jabin Kirk with one of his home-brewed creations.

some research, took some notes, and set out to make better beer. He noted that he would need malted barley, hops, and yeast. At the time, his local home brew shop didn't supply these raw ingredients, so he had to have them shipped from Brisbane, which is about three hours away. After receiving the ingredients, he made his first batch on the stove top, following the rules that he had written down during his research.

Jabin explained that back around 2007, the craft beer scene didn't really exist in Australia and that the only type of beers you could really get were generic lagers.

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At that point, Jabin began to read heavily about the beer-making process. For the next couple of years, he admitted, he probably brewed and drank too much. He even brewed all the beer for his engagement party and a few other events. In addition, he held an Oktoberfest party every year with a friend for which they would brew all the beer.

Over time, the equipment that Jabin has collected and the system he uses have become more complex. He said that there is a craftsmanship to it and that it is really a bit of an art and a science.

“There is a lot of science behind it, and if you don’t do any of that, you will end up with something which tastes terrible,” Jabin said. “That is one of the main reasons our attempts when we were at university tasted terrible.”

The science of brewing beer is one of the factors that attracted Jabin. Once he began researching, he realized that he hadn’t even begun to scratch the surface of the theory and techniques that were behind the process. For example, one thing that he learned was very important was temperature control during the beer’s fermentation period.

“The problem was that I had no way of actually doing that properly,” Jabin said. “I had this fermenter put into a little cupboard that we had in our house. Summer in Australia gets pretty hot, and so what I was doing was rotating bottles of frozen water in and out of this cupboard to try and keep the temperature down to an acceptable level.”

Up until recently, Jabin used what is known as a heat exchange recirculating mash system (HERMS), but has switched to using a simpler direct fired 3-vessel recirculating system, which is augmented with electricity.



▲ The direct-fired setup that Jabin currently uses to make his home brew.

The first vessel contains hot water. This hot water is drained into the second vessel, which is where the mashed grains are housed. The types of grains used will determine the beer’s malt profile and color. Jabin explained that once the water is drained into this second vessel, the mixture is held at certain temperatures for certain amounts of time—a process known as “step mashing.” During this part of the process, the enzymes in the mixture convert the complex sugars into simple sugars. Then this mixture is drained into the last vessel, where it is brought to a boil. This is when the

hops are added, and the timing of their addition affects the bitterness and aroma of the beer. Finally, the mixture is chilled and yeast is added. There are a lot of different styles of beer, and, when, deciding on a beer to make, Jabin said that the Beer Judge Certification Program style guidelines are a good resource. These guidelines are used to group styles of beer together for judging during competitions. They include parameters that a beer should meet for it to fall into a certain category,

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## FEATURES

Continued from previous page

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including aroma, appearance, flavor, mouthfeel, and ingredients.

“It is balancing the different types of grains, the different hops, and then considering the yeast profile that you want to get at the end as well,” Jabin said. “If you want to brew an American pale ale these are the parameters that you want to hit with things like amount of alcohol, the color—these sorts of things.”

The main type of beer that Jabin likes to brew is Belgian-style beer. He even traveled to Europe for a few months with his wife and two friends, and part of that trip was a beer tour of sorts around Belgium. While there, they visited some of the Trappist breweries, where monks have been brewing beer for hundreds of years.

For Jabin, the most important part of the brewing process, since he brews primarily Belgian-style beers, is the yeast selection. There are hundreds of different strains of yeast to choose from, and the selection of yeast will have a significant impact on the final flavor of a beer. According to Jabin, Belgian yeast creates compounds such as phenols, which will give flavor notes of cloves and pepper, and esters, which will give notes of different fruits.

“Belgian yeast are quite special in that they are very expressive in terms



▲ A Belgian pale ale brewed by Jabin.

of their flavor profiles,” Jabin said. “Those Belgian yeasts are much more flavorful than, say, for example, an American ale yeast.”

Over the past decade, Jabin said that the craft beer scene has exploded in Australia, and this has pushed companies to produce a wider variety of beers, such as India pale ales, American pale ale, and sours. However, Belgian-style beers are still hard to come by. And this is one of the reasons he is glad he embarked on his home-brewing journey all those years ago.

“I am lucky that I’ve been into it for as long as I have, because I can manufacture anything,” Jabin said.

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