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Benedek Németh

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Presentation of the role of craft beer brewing in the Hungarian hospitality.

Supervisor:

Magyarné Dr. Horváth Kinga PhD

Lecturer, Associate Professor

Author:

Benedek Németh

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Kereskedelmi, Vendéglátóipari és Idegenforgalmi Kar

Eredetiségi nyilatkozat a szakdolgozatról/projektmunkáról

Hallgató adatai			
Név, Neptun-kód	Németh Benedek Miklós		HQFWGP
Elérhetőség	Telefonszám:	+36 20 772 16 19	
	E-mail cím:	bndknmth@gmail.com	
Levelezési cím (ir. sz., város) (utca, házszám stb.)	1103	Budapest	
	Olajliget utca 25		
Kar (rövidítve), tagozat, szak	KVIK	nappali	Turizmus-Vendéglátás

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Németh Benedek
(aláírás)

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Preface

Love for beer for me dates back to somewhere of a very early age. Perhaps at such an early age, that it would not even be legal to write it down. Tasteless jokes apart, this early love helped me to make my decision to write my theses on this topic. Gastronomy and eating as such, is important for me. I was around ten when it was conceived in me that I want to be a cook. To be able to study it a higher level, I chose to go to Budapest Economic University. Long and short of it is, dining and catering has always played an important role in my life. I know that for dining well and for a perfect dinner selecting the right drink is as important as a well composed menu. The Hungarian hospitality culture has been poisoned (in a good sense of the word, of course) by the craft. New restaurants, pubs and other catering units (by which I mean Street Food Trucks) keep opening one after another in the country, but mainly in Budapest, with the motto of meeting high demands and having the expertise. To avoid misunderstanding: I do not think this tendency is normal, but obviously, in our fast going world within the everyday pit-pat of global food production industry demand for such and similar initiatives has increased. It is so in beer brewery, as well. Besides the usual and monotonous tastes offered by beer factories owned by multinational companies, demand for special beer combinations has also increased. This phenomenon has reached our little country with a delay; however, we have not missed anything. Nowadays craft or artisanal beer can be found in the fridges or beer taps of more and more pubs, bars, restaurants, with a great number of which building their business exclusively on this type of beer. Certainly, catering units that possess the permission for hot or cold kitchen tend to adjust the menu to the beer offered. No exaggeration to say that gastronomy we live the age of festivals. Should it be a music or other festivals such as the ones advertising a region or showing and lining up gastronomic values and drink specialities. Especially in summer we can say there is a festival for each weekend. This way the beer, as the most important type of drink of our culture has inspired numerous festivals. The history of beer festivals dates back to about the beginning of the 2010s. That time the first beer festivals were organised in our country which, alike the expectations were a huge success. Since then, craft beer brewing started to undergo an incredible development in Hungary, partly with the help of these festivals, and partly due to their own marketing activity. As a result of this boom in development craft beer

brewing Since then, I have often been attending pubs and restaurants where I can have craft beer with my friends and acquaintances. This development as well as the love for beer and gastronomy has inspired me to choose this topic for my thesis. I can do research in a topic which is interlacing in my free time and profession. In my thesis I invite the reader to a travel which is to map a little segment of beer brewery by putting it into a new aspect at the same time.

1. The beer

„Beer is a fizzy, refreshing alcoholic drink made from crops or other starchy plant” (Britannica Hungarica, World Encyclopaedia, volume XVI, Magyar Világ Publisher, beer subsection.) In addition to the encyclopaedic definition carbon-dioxide rich alcoholic drink, made from malt and certain surrogates mashed with water, fermented with marmite, flavoured with hop and other permitted flavourings. For example, in Germany the terms and composition of beer on a legislative level is defined by four components. So, according to the German regulations, beer is made from sprouted barley, that is malt, hop, yeast and water. But, in fact, what are these components under strict regulations?

2. The Beer History

2.1. The Ancient Times

As for the beer history, we can go back in time about 8000 years. Surviving archaeological finds can lead us back to those times. Different sources discuss different stories of origin, but still, all of them mention a similarly made drink as the predecessor of the beers known today. According to some sources the oldest developed culture known today was the Sumerian, between the Tiger and Euphrates rivers. They were still living in they were tribal alliance when they gave beer as holy communion –called sekaru- to their gods, perhaps mainly to the god of fertility, to Nisba. The oldest written evidence of making beer the „Monument Bleu” comes from that time, from the 3rd millennium BC. Today it can be seen in Louvre in Paris, and it depicts the graven picture of wheat shelling for the purpose of making beer. Unleavened pie was baked from the wheat, and then it was trampled in water, fermented with honey and flavoured with honey and fruit pulp to make it tastier. One of the greatest monarchs of Babylon, the legislator Hammurabi composed his corpus juris graven in stone, 360 sections of which regulates beer brewing, the beer quality and beer trade. Hammurabi’s Law Column can also be viewed in Louvre today. (GREG HUGHES, (2014), *Házi Sörfözde*, Libri Könyvkiadó Kft.)

Beer was also brewed in the ancient Egypt in the 5th millennium BC. It was a popular drink among slaves and the rich, too. This time beer was made from barley loaves. The loaves were soaked in water, fermented, and flavoured with dates or date leaves. The ready product was a turbid, rough drink, which was drunk filtered and unfiltered, too. It was sucked out of the stone jars with the help of a straw or a reed, and in the Middle-East mouthpiece, covered jar with an own filter became widespread. Beer in fact was liquid, preserved bread, and was consumed as food, too. According to the legends, Osiris, god of fertility had an accident while being drunk. That is why people gave Holy Communion mainly to him. Mankind, however, was almost fully devastated by Hathor, daughter of Ra, creator sun god Ra, because of its sins. However, her father spilt a lake size amount of ecstatic drink in front of her; - presumably some kind of beer- and with the help of this mankind survived and became deeply committed to it. According to an Egyptian story known as Heavenly Cow Myth, Re principal deity also saved mankind with the help of beer. It was commemorated on the 20th day of the first month in the flood season; this day was the Feast of Drunkenness. The root of the words for food and beer is the same in the Egyptian language. In the epitaph of more noble people we can read the following: „I saved the poor from the rich, I gave bread, beer and pie to the starving, and clothes to the naked.” In the Demotic book of dreams we can find a number of different dreams connected to beer, such as the following: dreaming about warm beer means pain. (GREG HUGHES, (2014), Házi Sörfözde, Libri Könyvkiadó Kft.)

The Arabic Conquerors also learnt beer brewing in Egypt since to do that settled down agriculture is necessary. Europe got to know beer brewing with the intercession of the Greeks. Although the Greeks knew the „barley wine” they were rather grape wine drinkers. Greek and Roman historians, Dioskorides, Plinius Antiochus give a detailed description about the ecstatic, what is more, drunk in big quantity headache generating drink; perhaps the most common alcoholic refreshing drink of mankind since grapes cannot be grown anywhere, but where people live, there

cereal is grown as well. (GREG HUGHES, (2014), Házi Sörfőzde, Libri Könyvkiadó Kft.)

2.2. The Middle Ages

European beer history was continuously developing from the Ancient Ages into the Middle Ages: some time back in the 1st century. Philistines, Thracians, Illyrians, Franks, Germans, Celts and Brits are already known as beer drinkers. Tacitus writes about settled, cereal growing Germans. According to Germans the sky is one huge beer brewing cauldron, and the drink flows as creeks in Walhalla. Excavations uncovered beer brewing devices of German military troops which come from the age of Emperor Constantine Great: the 4th century. In the early Middle Ages North-West Europe, Flanders is also famous for beer brewing. In Britain the catholic church disapproved of excessive beer consumption even as early as the 5th century. However, beer produced in the ancient and early middle ages should be called barley juice rather than beer since it contained no hop. (SZABÓ ERNŐ, (1996) Sörlexikon – Sörtörténelem, Akadémiai Kiadó)

The greatest medieval tradition of the European beer history is connected to the monasteries and monks. Even in the 5th century with the beginning of the reign of Carl the Great (747-814 A.D) this monastery type industry was prospering. The peasants often paid their church tax in beer, and the monks were brewing beer themselves, too, to make fasting easier since drinking was not forbidden even during fasting. Monks improved the technique of beer brewing and the recipes a lot, and the hop growing connected to it became popular. It is said that they popularised hop for flavouring beer in Western-Europe. There is a great number of written evidence about it which describes that in 822 A.D. it was used in Northern France. Hop is not only responsible for the aroma but for the preservation, too; by around 1000 its use became usual. Beer brewing improved into perhaps the most prosperous business of the monasteries, which later was opposed by the kings and the medieval town citizens whose interests were the opposite. We can thank for improving the beer brewing technique as well as the Chartreuse and Benedictine liqueur to the

monks and also champagne was invented by a 17 century Benedictine monk. At around the 12th century families were already brewing beer in their homes and by the end of the Middle Ages the centre of beer brewing and the beer business was shifted from the monasteries to the towns and cities. (SZABÓ ERNŐ, (1996) Sörlexikon – Sörtörténelem, Akadémiai Kiadó)

Beer brewing was accompanied by legends dating back to earlier times. This way the tale of the king of Gambrinus, the patron saint of beer drinkers and makers was created. Only a royal patron saint is worthy to the beer. Many people say that Gambrinus is a false name of a real historical person. His master Jan Primus (1253-1294), prince of Brabantia, Limburg, Lorraine, son of Henry III, who, in addition, first married Margaret of Flanders and obviously, extremely loved beer. (Source: http://soromok.blog.hu/2010/01/12/gambrinus_a_sorivok_es_sorkeszitok_vedoszentje [accessed February 11th 2018])

That time beer spices were different spice and wetland plants. Charlemagne's City Code even had some provisions on that. After the appearance of the hop secret recipes still were in use. The 15th century sweet-strong Braunschweigi Mumme is one of this kind, which was the king of the German beers once, inheriting the name of its producer.

The medieval beer this was left the world of the legends and entered the world of history. Cities were given brewery rights. By the middle of the 14th century, Augsburg, Dortmund, Köln, Gosslar, Regensburg, Nuremberg, Hamburg, Danzig, Rostock, Wismar, and Lübeck got royal permission for beer brewing. A great number of breweries, beer types, what is more, beer brands were connected to them; first guilds then concerns were formed. One third of the trade of the Hanseatic City Hamburg mentioned in the list was beer. At the same time in Magdeburg brewer's yeast had to be obtained in the Cardinal's brewery. There are terms and names used in beer brewery that comes from the end of the Middle Ages. The booming beer brewing led to beer trade. All this,

however, looks into the Modern Times. (SZABÓ ERNŐ, (1996) Sörlexikon – Sörtörténelem, Akadémiai Kiadó)

2.3. Modern Times

In the modern era the international beer habits beer types, big names and terms being in use in our days, as well as certain cardinal technologies were formed. Mass production of beer in England started to flourish from the reign of Henry VIII. (1491-1547) .That was the time when ale beer type became popular, too. Step by step more modern legal institutions regulating and protecting the beer quality were set up. For example, around 1500 the British authorities banned the hop being grown that time on the islands; which was obviously done so to protect their own beers and beer brewers. However, it was soon grown again and became a usual beer spice later. (SZABÓ ERNŐ, (1996) Sörlexikon – Sörtörténelem, Akadémiai Kiadó)

The Thirty years ' war brought a trauma in the European beer development, by the first half of the 17th century there were only a few beer breweries remaining unharmed, and they were mainly located in the highly defended cities. The Peasants' Wars against the beer rights connected to the former church institutions also distinctively separated the Modern Era from the Middle Ages. Everything had to be re-started but the technical development appearing as a result of the industrial revolution could not be stopped any more, and beer soon became a modern technique, what is more a science. From the quality measurement instruments (saccharimeter) to the automation (steam-operated roller mills, refrigerators, mixing machines, pumps, huge containers), moreover, the technical reform of transport and commerce, everything served and founded the large-scale industry of beer production. In 1857 Louis Pasteur discovered that yeast is responsible for the alcoholic fermentation. (SZABÓ ERNŐ, (1996) Sörlexikon – Sörtörténelem, Akadémiai Kiadó)

Besides others, those technologies were created that made it possible to produce a beer with longer shelf life suitable to be transported longer distances. This way those stable beer types were created which

generated international demand and trade. Markets spreaded, there were great numbers of different specialities serving long lasting demand, which largely contributed to the versatility of the beer types; the process which is still going on today. (SZABÓ ERNŐ, (1996) Sörlexikon – Sörtörténelem, Akadémiai Kiadó)

The beer guilds of the end of the medieval first grew to become beer factories, then, by acquisitions and mergers and similar economic processes the huge beer syndicates were born. In the 19th and 20th centuries the big, internationally marketable and sought for beer brands were born which survived their first and even later producers' alterations; and they do so even today as long as it is the interest of the market. (SZABÓ ERNŐ, (1996) Sörlexikon – Sörtörténelem, Akadémiai Kiadó)

In the beer production, too, there are ongoing international, what is more, global industrial processes. Any beer brand can be produced trustily anywhere on the Globe, the necessary raw materials, ingredients composing the secret of the brewing can be transported basically anywhere easily, and at a reasonable cost. There is a friendly, but hard competition on the beer market. It is hard just like all the business competitions; nevertheless, there are some essential, common interests such as increasing the standard of the beer culture. It is beneficial for all the beer producers and beer merchants, so it is easy to understand, why the international companies operating in Hungary for instance clog together into beer brewing alliances. In those, however, our own national technologies and brands can live on. (SZABÓ ERNŐ, (1996) Sörlexikon – Sörtörténelem, Akadémiai Kiadó)

Industrial development has led to a paradox result regarding the beer consumption culture. The old type of beer brewing and consuming that was linked to local, family-owned restaurants and reminiscent of home traditions is closer to people than the robust, large scale industrial, computer driven, and mass-production of today. Only the former one was an isolated, minority culture and only the fame of that could travel around. So, what about today? Great masses of people can obtain the same

experiences by getting the original value and quality worldwide. (SZABÓ ERNŐ, (1996) Sörlexikon – Sörtörténelem, Akadémiai Kiadó)

2.4. The Hungarian Beer History

The first written source mentioning beer brewing in Hungary comes from 1152. One of the oldest beer breweries is the Beer Brewery of Pécs. Beer brewing started in the 14th century in Pécs, using the water of Mecsek as one of the main commodities. Beer played an important role in restraining epidemics, throughout the history since it was safer and tastier than untreated well-water. From this aspect in Pécs the most critical times were the decades after the Turkish expulsion, and later the time period of the plague. In 1702, Leopold I. permitted the city to support the local spital from the tax paid after beer brewing. Hirschfeld Samuel founded a factory from the city beer brewery in 1848. From 1911 the beer factory continued its operation under the name Pannónia Sörfőző Rt. (Pannonia Beer Brewing Ltd.) and from 1993 it was owned by Austrian owners: it was bought by the Ottakringer-Wenckheim Partnership. The beer brewery has been in Hungarian ownership since June 2017. (Source: http://www.mandadb.hu/cikk/837374/Egy_kis_sorgyari_capriccio [accessed February 12 th 2018])

The Kőbányai Dreher Breweries Ltd also has a historical past, and it is one of the biggest beer breweries in our country. To compare, we can mention hear that the oldest documented brewery of Budapest, Első Pesti Serfőző Ház (First Pest Beer Brewing House) started its operation in 1687 by favour of the Bavarian James Proberger. Beer brewing in its home made style and in manors was already a popular activity as early as the 17th century. The Pesti Beer Brewing Regulation from 1843claims that for a beer duty anyone can brew beer with no other conditions to obey. (Source: http://www.mandadb.hu/cikk/837374/Egy_kis_sorgyari_capriccio [accessed February 12 th 2018])

Franz Anton Dreher was the founder of the beer brewing dynasty; he was the one who bought Klein-Schwechatl Városi Serház (City

Brewery) in 1796. His son continued the heritage from his father. Senior Dreher Antal, the later 'beer king' gained experience, new recipes, new techniques on his trips abroad, and in 1862 he took over the Kőbányai Serfőző Társaság (Kőbánya Beer Brewing Society) founded in 1754 by Peter Schmidt. By doing so, he founded Dreher Beer Breweries. Schmidt, by the way, researched a great beer, the 'lagerbier' made from Kőbánya well-water and cold-stored in Kőbánya cellars. This was what drew Dreher's attention. Beer brewing today is still done partly in the facilities built in 1854, which is also an industrial historic point of interest. (Source: http://www.mandadb.hu/cikk/837374/Egy_kis_sorgyari_capriccio [accessed February 12 th 2018])

After his son, junior Antal Dreher took over the running of the factory Dreher has outgrown to become the largest beer brewery of Hungary, and we still speak about the year of 1890. The last Dreher beer brewer Eugene Dreher transformed the factory first to a public limited company, and then into an independent Hungarian company; it expanded by continuously acquiring the competitors. In 1933 the factory named Dreher-Haggenmacher Első Magyar Részvény Serfőzde Rt. (First Hungarian Shareholding Beer Breweries Ltd.) had nearly 70% of the market. Haggenmacher family was also a beer brewing family; they got into contact with the Dreher family through marriage. Dreher became a world famous beer brand from Africa to Asia. However, the privatisation in 1948 liquidated the assets of the family in Hungary, and the grandiose firm was merged. The descendants of the Dreher discontinued beer brewing and the factory itself was not allowed to wear its name until the 1990s. Since then it has been operating again under the name of Dreher Sörgyárak Zrt. Between 1993 and 2016 the factory was operating within the frameworks of the second largest beer brewery the SABMiller, the firm which was set up by the South-African and American fusion.

(Source: http://www.mandadb.hu/cikk/837374/Egy_kis_sorgyari_capriccio [accessed February 12 th 2018])

Better known as Soproni Sörgyár (Beer Breweries of Sopron) named Heineken Hungária Sörgyárak Zrt. today, i.e. the First Sopron Beer Breweries and Malt Factory was established in 1895 by merchants from Brno. Beer culture has a nearly 500-year old historical past in Sopron, according to written records beer pubs were regulated as early as 1523: selling draft beer was forbidden after 8 p.m. In 1902 the Sopron products became commercially available and they constantly became more and more popular. However, in the middle of the century, this factory could not avoid deprivatization, either. It received back its independence after more than 30 years, what is more, from the 1980s it bought up a number of foreign licences, too. In 1997 it merged with the Első Magyar Szövetkezeti Sörgyár Rt. of Martfű (the First Hungarian Cooperative Beer Factory Ltd) and from 2003 it has been a member of the Dutch Heineken group. (Source: http://www.mandadb.hu/cikk/837374/Egy_kis_sorgyari_capriccio [accessed February 12 th 2018])

The Borsodi Sörgyár Zrt. of Bócs was established in 1973 since beer consumption soared in our country in the 1960s and 70s, it was necessary to establish a new beer factory. Two products were launched then: Borsodi Világos and Kinizsi. Just like the other big beer factories in the second half of the 20th century, Borsodi was also a member of the Magyar Országos Söripari Vállalat (Hungarian National Beer Industry Company). They were the first to try producing the alcohol free beer, Borsodi Póló in 1987, which was considered a novelty that time, and also the canned beer in 1995. In the 90s the factory changed owners many times, and at present it is in American-Canadian ownership. The firm devotes environment conscious operation and waste water treatment a special importance, and since 2006 utilization of sewage sludge for energy purposes has been solved during production. (Source: http://www.mandadb.hu/cikk/837374/Egy_kis_sorgyari_capriccio [accessed February 12 th 2018])

3. The Brewing

3.1. The malt:

Malt is made by germination of barley, wheat, and other corns. It is one of the main Ingredients of beer and other alcoholic drinks that are fermented from corn, such as whiskey and vodka. During the germination of the corns an enzyme, so called diastase is created, which is able to break down the starch into malt and dextrin, to be transformed by yeasts into alcohol.

3..1.1. The germination process:

Malt producing process begins with germination. Any kind of corn is suitable for malt making, but barley is the best. The cleaned barley is put into soaking tubs made of iron or cement, and they fill it up with water not only to cover the barley but also being a few centimetres over it. After a while the wrong grains and all the other impurities of the barley as well as peels, will form a layer on the surface of the water, which is removed so that it does not disturb the germination smoothness. Some ingredients dissolve during soaking causing putrefaction easily therefore water must be changed more times. The duration and change of water depend on the quality of the water and the temperature. In malt producing process water absorption must go on until in the middle of the cereal grain a point non-soaked can be seen. The barley grain can be considered soaked enough for germination if the grain pressed with fingers the peel comes completely and easily off the floury part. From well soaked 100 parts by weight maximum 160 parts by weight and minimum 130 parts by weight barley can be obtained. If the barley is soaked enough, water is removed and for the purpose of germination barley is taken to the drying area, to the malting floors. It is spread out on the floor and is tilled with huge rakes in every 6-12 hours to prevent it from mold formation, which is the harmful effect of the warmth appearing during germination. That is why the process is also referred to as threshing floor malting. The corms will soon appear as a sign of the germination

process having begun. In malting germination keeps going on until the evolving diastase reaches its maximum. At this point the germination process is interrupted. Malt produced like this is called green malt which contains about one-third part of water. In spirits industry green malt is used, in beer production, however, the processing continues. (Dr. STRÁHL ANTAL (1982) Söripari technológia I., Mezőgazdasági Kiadó)

Threshing floor malting was developed into industry method at the beginning of the 1940s, this way making it possible to produce malt in bulk. Even today, malts produced with the traditional method are considered the best, but this method is too expensive for commercial breweries so it is quite rarely used. Instead of the costly production on the malt floors nowadays mechanic germination machines are used, although the old method could also be possible. Mechanic germination machines are various, among which the Galland pneumatic malt making method should be mentioned. The main principle of this method is the following: The properly soaked barley is put on a holed iron base in a thick layer. During germination at certain intervals or continuously clean, cooled and wet air is conducted to the layer of germinating grains, due to which the barley will receive enough oxygen; the evolving carbon – dioxide is channelled out, but still, drying out of the germinating barley does not occur. Lately, this method has been modified in different ways, and especially the Slackin pneumatic malt making process has become widespread. (Dr. STRÁHL ANTAL (1982) Söripari technológia I., Mezőgazdasági Kiadó)

3.1.2. Drying:

For the purpose of beer brewing moisture has to be removed from green malt. This procedure is called parching. Malfunctions of beer brewing are often caused by faulty parching; therefore malt parching requires to be done with great care. Green malt is transformed into parched malt by using artificially

generated warmth at the temperatures of 25-120 degrees Celsius or even higher. Malt dried on the air is called air malt, which, however, still contains 17% of water therefore keeping it has lots of difficulties. Well-parched malt should not only be keepable, but, what is more important than that, at higher temperatures certain components of malt should go through such changes that will influence the quality of the beer. By parching green malt, there are the following visible changes: drying, cubage decreasing, evolvment of aromatic tastes and smells and the change in the colour. (Dr. STRÁHL ANTAL (1982) Söripari technológia I., Mezőgazdasági Kiadó)

There is a great variety of parching machines in practice. The main point expectable from a good machine is that the malt necessary for producing the given type of beer can be easily and safely parched by using the least possible fuel. For the properties of malt depend on the proper parching process, the following points should be considered when parching:

- a.) Height at which green alt is put within the parching machine
- b.) The method of raising the temperature
- c.) The duration and the temperature of parching

We can distinguish between more devices used for parching of malt, such as parching machines operating with interruption; they can be either smoke parching machines, or air parching devices. They consist of plates made of metal sheets or wire mash placed above each other, upon which the greet malt is placed; drying is done by directly installing either smoke gases or hot air, or both. Nowadays malt parching machine with continuous mechanical operation are used. Depending on the parching temperature yellow or brown malt is obtainable. During parching, malt germ is produced when peeling off the seed. (Dr. STRÁHL ANTAL (1982) Söripari technológia I., Mezőgazdasági Kiadó)

3.1.3. Scorching

When germs are being removed, seeds are scorched to produce different malt types. The higher the scorching temperature is, the darker the malt, with stronger tastes. The enzymatic capacity of lightly scorched malts is high, therefore, when during mashing hot water is put into it, a lot of fermentable sugar is produced. However, the capacity of strongly scorched malts is low, from those only a little, or no fermentable sugar is produced. They contribute to the colour, taste and smell of the beer. (Dr. STRÁHL ANTAL (1982) Söripari technológia I., Mezőgazdasági Kiadó)3.1.4. Malt types

Base malts:

- ☼ Light base malts: they are used for very light coloured lager and ale. For example, Bohemian Pilsner, Sour or Carpalis malts belong to this group.
- ☼ Darker Scorched base malts: Stronger malt flavour and lots of fermentable sugar is available. For instance, amber malt, Biscuit malt or Victory malt belong here.
- ☼ Wheat malt: In addition to fermentable sugar, protein is also derived from wheat, which has a better looking, dim beer.
- ☼ Rye malt: It is less known as barley and wheat malt and used for giving the beer a spicy aroma.

Special malts:

These malts are particularly scorched to give a special colour taste and smell to the beer, although used in small quantity. Unlike base malts, they contain relatively small amount of fermentable sugar.

- ☼ Caramel malts: it is known as crystal malt as well. They have the taste of honey, caramel and butter caramel. For example: red, rye,- or wheat- caramel malt.

- ✦ Scorched malts: Darker scorched malts contain hardly any fermentable sugar; however, they provide compound colours, tastes, smells. For instance, Carafe special malt, colouring malt, or chocolate malt belongs to this group.
- ✦ Amber malt: This light, dry, biscuit taste scorched malt type gives the dark amber colour to ales and porters.

(Dr. STRÁHL ANTAL (1982) Söripari technológia I., Mezőgazdasági Kiadó)

3.2. The hop

3.2.1. About the hop in general

Hop, in Latin *Humulus*, is a genus of malt hemp. There are three species belonging here, the best-known and most widely spread of which is the ordinary hop.

Most probably, East-Europe was the home for the ordinary hop, but it has spread all over Central Europe since the 18th century. In wetter places, floodplains and groves it may sometimes form real impenetrable brushwood. The flowers of the perennial clambering plant are dioecious, male plants form loose panicles, pistillines thick ones; a yellow-green hop cones will develop from them. Dextrorse stems have hooky hairs and oppositely across shafted 3-5 lobular, rough to the touch leave. It blossoms in July and its 10-40 centimetres long tendrils clamber up to bushes and trees. In spring, the fresh offshoots come out from the 1-3 centimetres thick and some metres long rhizome by 20-50 centimetres per week, which speed is considered extremely high in the flora. (Dr. STRÁHL ANTAL (1982) Söripari technológia I., Mezőgazdasági Kiadó)

The flower of the rape herbs with the growing bract and cover flakes becomes cone-like. In medicine and for beer brewing only these so called hop cones are used. Inside the cones glandular hairs can be found which contain the bitter taste appetising and preserving substances. (Dr. STRÁHL ANTAL (1982) Söripari technológia I., Mezőgazdasági Kiadó)

Pharmacists call this drug *Strobuli Lupuli*. In folk medicine its tea is considered to have a sedative, soporific effect, although it is not known

what the active ingredient is. In drinks for curing insomnia the hop is combined with more efficient sedative herbs such as valerian. (Dr. STRÁHL ANTAL (1982) Söripari technológia I., Mezőgazdasági Kiadó)

According to researchers, it was first used for beer brewing in the 16th century. It was used to replace other bitter plants – dandelions, marigolds and heather – because the beer made with malt was less prone to deterioration. These days, owing to the extensive breeding programmes aimed at creating more fertile and more resistant plants, there are more than a hundred different versions grown worldwide. The main hop growing areas can be found in the territory of the USA, New Zealand, Czech Republic, China, Poland and Australia. (Dr. STRÁHL ANTAL (1982) Söripari technológia I., Mezőgazdasági Kiadó)

The best, vertically growing hop is trained on a cord-shaped support system- plants may grow as high as even 6 metres. Cord-shaped hanging is lowered at harvest in order to easily reach top cones, too. Dwarf variations are also grown, although they have to be grown on bigger territories for achieving the same crop yield. (Dr. STRÁHL ANTAL (1982) Söripari technológia I., Mezőgazdasági Kiadó)

Earlier hop harvest used to be done by hand. As a lot of people were needed for that, hop harvest became a kind of community event, too. In England, for example, whole families were travelling on trains and buses used directly for this purpose from the towns to the hop growing regions, where they lived temporarily in barracks, and were collecting the crop for weeks. Today hop harvest and drying is mechanized, but the hop harvest period brings great excitement into breweries, and for the pleasure of the new crops many breweries make not dried, „green hop beer”. (Dr. STRÁHL ANTAL (1982) Söripari technológia I., Mezőgazdasági Kiadó)

3.2.2. The composition of hop

So, hop serves as a typical flavouring of beer the cone of which is used during brewing. The shape of cone is given by the inflorescence which includes lupulin glands. They contain resin and oil, the two components important for us. Hop resin can be divided into three different

parts: soft resin, hard resin and uncategorized resin. Soft resin contains alpha acids. The three most important alpha acids for beer brewery are humulone, a cohumulone és az adhumulone. These compounds determine – as a result of boiling- the bitterness of the ready beer. Cohumulone is the most characteristic of the three alpha acids, because it has the bitterest taste. Soft resin also contains beta acid, which contributes to the bitterness of the beer once hop is oxidised. The hop aroma of the beer derives from oil. The different compounds in it, such as hydro carbonates, oxygenic compounds and sulphurous compounds give the aroma. (Dr. STRÁHL ANTAL (1982) Söripari technológia I., Mezőgazdasági Kiadó)

The components of resin:

 Alpha acid

More than 50% of the soft resin content of the hop is alpha acid which is the primary source of the bitterness of the beer. Alpha acid content of the hop is specified right after harvest. The rate of it, however, may decrease a lot later, compared to the initial rate which is greatly affected by the storage. It does not dissolve in beer directly, but must be isomerized which goes off due to the heat of boiling. Alpha acid belongs to the group of humulone compounds, and consists of complete hexagonal molecules with numerous side chains, which contain alcohol and ketone groups.

 Beta acid

Beta acid basically is not bitter, but as a result of oxidation during storage it becomes bitter. This way, the bitterness of the beer comes on the one hand from alpha acid, on the other hand from the oxidised beta acid.


 Uncategorized resin


As it is referred to by its name, we do not exactly know what kind of components it contains. In the

spring of 2000 Dr. David Ryder came out with an interesting theory. He assumes that this component also plays an important role in the formation of the beer aroma, and that comes during fermentation. According to the theory, in this uncategorized resin there are certain chemical compounds bonded to sugars which dissolve into beer liquor during boiling. During fermentation, yeast breaks down sugars, this way freeing those compounds. This theory, however, remains a presumption as long as it is not proven by research. Until then, the term uncategorized resins used. (Dr. STRÁHL ANTAL (1982) Söripari technológia I., Mezőgazdasági Kiadó)

The components of oil:

The oil of hop contains at least 300 compounds that influence the aroma of beer, but the role of the majority of them is still unknown. These compounds can be classified into three main groups: hydro-carbonates, oxygenised compounds, and sulphurous compounds. About 75 % of the oil in fresh hop is hydro-carbonate, 23-24% oxygenised compounds and 1-2% sulphurous compounds. The low rate of sulphurous compounds can be deceptive because their effect in aroma is great.

 Hydro-carbonates


 Hydro-carbonates contain the classical essential oils which are chemically classified into the group of terpenes.

 Oxygenised compounds

The amount of these compounds is constantly growing during storage, the degree of which

depends on the storing method. In order to reach the characteristic aroma, older hop is put to the beer consciously because oxidation is more advanced in them and thus the ratio of oxygenized compounds is higher.

Sulphurous compounds

 Although these sulphurous compounds are present in hop only in a small percentage, they are still effective flavourings.

In fact, these chemicals are created not in a natural way. Hop growing fields and drying ovens are treated with sulphurous substances to prevent overgrowth of hyphomycetes. A very little part of it is built into lupulin. These compounds are also very volatile, but still, they appear in the taste mostly by being added at the end of boiling; the taste is referred to as „cooked vegetables” „garlic”, and „onion” components..

Tanines or Polyphenols

Hop also contributes to the polyphenol level of the beer. Unfortunately, these compounds are referred to as the cause of the cloudiness and opacity of the beer. Fortunately, due to the high temperature they link with proteins and salt, this way preventing clouding. Dry hop, however, can induce cloudiness by the dissolved tanine. (Dr. STRÁHL ANTAL (1982) Söripari technológia I., Mezőgazdasági Kiadó)

3.3. The yeast

The mechanism of fermentation, during which sugar transforms into alcohol and carbon dioxide, was a mysterious process for beer brewers for a long time. The phenomenon itself had been known for ages; however, it came to light only after the appearance of the first microscopes

in the 17th century. Earlier, beer brewers simply left the beer liquid uncovered, the spontaneous fermentation of which was done by wild yeast strains growing in the air. In addition, before yeast was known, fermentation was induced by different hypomyces and wild yeasts. Even more astonishing methods were used: in the ancient epic of Teutons, Edda, or the Finnish Kalevala animal saliva is mentioned. Animal saliva can induce fermentation just as human saliva does metabolism. Some of Amazon tribes even today induce fermentation for making their beer type drink by having women spew into the boiling pan. (GREG HUGHES, (2014), Házi Sörfözde, Libri Könyvkiadó Kft.)

In 1857 the famous French chemist Louis Pasteur pointed out the importance of the yeast in fermentation. The scientist had already been engaged in studying the process of alcoholic fermentation for decades then. Due to his discovery the methods of beer brewing went through a revolution. He had his method of „producing and storing a non-deteriorating beer” patented, with the help of which beer brewers could control the fermentation process more precisely. The research of Pasteur served as the basics for the today accepted beer brewing hygiene, i.e. excluding the different wild yeasts, bacteria, hypomyces and all the factors having harmful effects on the fermentation, or cause the deterioration of the beer, from the beer brewing process. According to estimates, more than 1500 different beer yeast types exist, but for beer brewing only one of them is used- this is *Saccharomyces Cerevisiae*. When yeast is added to the beer liquor, unicellular fungi take on sugars and carbon hydrates in the sweet liquor, and during the process they create carbon dioxide and alcohol. Beer yeast produces a number of by-products, too, which affect the smell and taste of the ready beer. The most significant by-products are esters, fusel-oil and diacetyl:



Esters are chemical compounds that affect the final product with important flavour characteristics, especially complex fruity character. They can be found in a number of different beer types in various amounts, especially in ales and Belgian type beers. Their

quantity depends on the temperature of the fermentation: the higher the temperature, the more esters are produced.

✎ Fusel-oil is a mixture of different alcohol compounds that give the beer peppery, spicy features. Although they can be found in a number of beer types, it is considered a mistake if they are too much emphasized.

✎ Like Fusel-oils, a too big ratio of diacetyl is also considered a big mistake in case of most of the beers, especially lagers. Although it can be present in small quantities in many beer types, in bigger quantity it gives the beer a strong, buttery, butterscotch taste and smell. Diacetyl is usually „cleaned” yeast by the end of the fermentation, so if it is still present in the ready beer it is often the sign of fermentation. (Dr. STRÁHL ANTAL (1982) Söripari technológia I., Mezőgazdasági Kiadó)

Two main types of yeasts are used in beer brewing: top fermentative used for ales, and bottom fermentative used for lagers. Top fermentative yeasts work best at higher fermentation temperatures, usually at 16-24 °C, and the origin of their name is that during fermentation they come to the surface of the fermentation container. These yeasts, especially at higher temperatures, produce a number of complex esters, which results in a wide variety of tastes and smells. Top fermentative yeasts can be further classified into ale and wheat strains based on the flavour characteristics produced by them. Bottom fermentative yeasts, on the contrary, are best productive at lower temperatures, around 7-15 °C, and they subside on the bottom of the fermenting container. Clean, neutral taste beers are produced with these yeasts. Because of the lower fermentation temperature in case of top fermenting yeasts less ester, but more diacetyl is produced. To decrease the quantity of diacetyl along with a lot of bottom fermenting yeasts „diacetyl rest” is needed, during which at the end of the fermentation process, temperature will rise for a couple of days. Beer yeasts can be classified by their subsidence and fermenting abilities. Subsidence shows how easily living cells can unite and subside at the bottom of the beer liquor; this will determine the rhythm of the

cleaning process of the beer- the higher the subsidence measures are, the sooner the beer can clean. Forcibly clotting yeasts may have to be activated or stirred up in order to make the fermentation successful. Fermentation ability is the measure of how effectively the yeast is able to ferment the sugars available. It is usually given in percentages, where, for instance, 100% fermentation ability means that the given yeast in the beer liquor can ferment all the sugar into alcohol. Subsidence measures of the high fermentation ability yeasts, is usually low, and vice versa. (Dr. STRÁHL ANTAL (1982) Söripari technológia I., Mezőgazdasági Kiadó)

3.4. The water


It can be stated in general, that for beer brewing good quality water is needed in big quantities. More than 90% of the ready beer is water. In general, a brewery uses 4-6 litres of water for making one litre of beer, but in smaller breweries this amount can be much greater. Water is not only used directly for brewing, but for cleaning, disinfecting, cooling, bottling, etc. where of course, different qualities and cleanliness is necessary. (Dr. STRÁHL ANTAL (1982) Söripari technológia I., Mezőgazdasági Kiadó)


The chemical compound of the tap water is determined by the route it does from the spring to the tap. As rainwater infiltrates through the soil, different minerals can get into it depending on the soil type. Some minerals, such as calcium and magnesium are dissolvable in water. These dissolvable materials are absorbed by the water. High mineral content water is called hard water, low mineral content water is called soft water; the latter one is usually water infiltrating through shiver and granite. (Dr. STRÁHL ANTAL (1982) Söripari technológia I., Mezőgazdasági Kiadó)

When the analysing methods of the chemical composition of the water were not known, the type of beer produced in certain regions was often determined by the local water. If we want to make a certain type of beer, we can reach credible results by „copying” the water of the given region. The bohemian Pilsner for instance, the home of lagers, has one of the softest water in the world: it contains almost none of the minerals. The


beer made here therefore is extremely clear, with a unique taste. Dublin – the home town of the famous Guinness– on the contrary, has markedly hard water, the hydrogen-carbonates and calcium content of which is very high. As the high PH water is being balanced by the strongly roasted malts and their acids, the perfect stout type beer is produced. (Dr. STRÁHL ANTAL (1982) Söripari technológia I., Mezőgazdasági Kiadó)


3.5. The process of beer brewing

 **Grinding:** The very first phase of the beer brewing is grinding. Its role is to uncover the inside of the malt, and grinding it into flour. It is very important to reach the necessary softness because if the grist remains rough, water cannot get into the malt granules deep enough but if it is too soft, it cannot absorb water adequately, and felting may appear.


 **Mashing:** After malt is being prepared, actual beer brewing process can begin. For this, in Northern Europe, America and England the so called infusion procedure is being used, while in Central Europe decoction procedure is usual. In case of decoction procedure malt flour is mixed with warm water in huge mashing tanks, and one – third of the mixture is put in a boiling-pan. It is then heated until boiling, then it is boiled for a while, after which it is pumped back to the rest of the mixture in the mashing tank. As a result of this, the mash is warming up to 50-55 °C. The same procedure is repeated then two more times, when mash is warming up first to 62 °C and then to 75 °C. After that mash is stirred until the saccharification of the starch is finished. It can be realized from the fact that the mash with iodine does not give the blue discoloration, characteristic for starch. The whole of the mash is heated up to the necessary 65-72 °C. During the infusion procedure the malt flour is mixed with water while being slowly heated up. The purpose of the procedure is that the useful substances of the ground malt, proteins, and dissolvable starch should be dissolved as much as possible, and should be transformed into sugar with the help of the active enzymes. Mashing is done at the temperature of 65-75 °C. This is the phase of the beer brewing when the alcohol content of the beer is also set. The


filtering pots used for filtering the beer liquor are round shaped, double bottom huge pots the upper bottom of which is pitted. The mash is precipitated here where deposited marc serves as a filtering layer. The so called extract of the filtered mash (dissolved substance) contains some 92-94 % of carbon –hydrate, (74-82 % of which is fermentable, the rest is dextrin), and 4-6 % protein. This filtered liquor is piped then to the wort boiling caldron, where the beer making procedure continues. The still dissolvable part of the solid components remaining after filtering is dissolved with the help of a little hot water; this is – as it is also called in wine making jargon - the afterwort. The remaining marc is an excellent animal feed.


 **Hopback:** The purpose of boiling with hop is the precipitation of the proteins, the concentration of the beer liquor and sterilization. Mash with the hop is largely boiled for about 1-1,5 hours. The boiled beer liquor is filtered again, and then it is cooled. For cooling it is important that the beer liquor take on air- yeast needs that- and then cooling must be quick , especially between dangerous temperatures (50-30 °C), so that the lactic, as well as butyric infection does not cause any problems.

 **Fermentation:** After that, fermentation takes place, which is done in an artificially cooled room, to prevent the overgrowth of harmful bacteria. The fermentation can be divided into two, not sharply separable parts: main fermentation and post fermentation. The beer made with bottom fermentative yeast is fermented at the temperatures of 5-9 °C while the beer made with top fermentative yeast at 10-25 °C. The beer liquor is mixed with 0,4-0,5 litre thick yeast pulp per hectolitres. The 20-400, in some cases more thousands of hectolitres fermentation containers are made of wood, metal, or paraffinic concrete. In these containers the cooled beer liquor mixed with yeast will soon ferment, and be covered with thick, glutinous foam. After 4-7 days the foam begins to shrink, its surface is getting brown because of the hop resins, which indicates that the main fermentation has reached its peak. During 4-14 days the yeast subsides. At this point 50-60% of the beer liquor extract is fermented, and the new beer can be separated from the yeast lees, the marc. The top and lower layer of the yeast lees consists partly of dead cells mixed with

wild yeast, whilst the middle layer is the so called 'seed yeast'. By separating that, it is washed with icy water and used to inject fresh beer liquor of the next brewing.

 **Cold storage:** After the main fermentation the cold storage of the picked beer follows that is referred to as the post fermentation. The beer is piped to the cold storage cellar. These cellars have a permanent 0 - 1 - 2 °C temperatures, the beer is stored in huge wooden barrels or metal containers covered with white tar inside. The lower the temperature, the slower the post fermentation process is, and the more harmonic the beer. During the 2-5- months cold storage at the low temperatures the beer cleans off, and the carbon dioxide dissolution begins, the nice and stable foam structure as well as the typical taste harmony is created.

 **Beautifying filtering, pasteurization:** After ripening we can in fact speak about the ready beer, although experience beer drinkers can still realize a slight opacity in the beer. That can be removed with the so called beautifying filtering, this way making the beer bright-reflecting. I need to note, that gourmands deliberately like unfiltered, so called strong beer. In their opinion it is much richer in tastes and aromas than the filtered beer. If it is necessary, the beer is pasteurized, in order to kill the microorganisms remaining in it. It is the practice in case of beer produced by today's multinational companies, the mass beer. In practice it means that the drink is heated up to 70 degrees of Celsius for a couple of minutes before picking. A more accepted and safer method but at the same time a more energy-intensive method is when the bottled or canned beer is pasteurized.

 **Bottling:** The ready beer is usually picked into transporting barrel or bottles by filtering it through cellulose filters. All of that must be done without foam, and using carefully and properly cleaned, washed barrels, bottles. Picking, if we want to stay on the safe side, must be done under overpressure, which means that air is sniffed out of the barrel or bottles, and then filled with carbon-dioxide, and then it is filled up with beer. The inside of the transporting barrels is covered with white tar in order to prevent the beer from ingraining into the staves and to prevent acidification and mould creation. The bottled beer is normally

pasteurized at the temperatures of 60-70 °C to make it longer lasting. The alcohol and extract contents of the ready beer naturally depends on how thick mash was produced and to what extent it was fermented. In general, we can say that the alcohol content of the beers is somewhere between 2,5-5%. During fermentation in some cases depending on the type of the yeast used dextrins or by chance maltose may remain unfermented. The final phase of bottling is closing and labelling the bottles. Closing the bottles can be done by using crown cork, buckle bottle or a simple screw cap. A substance called isohumulon can be found in the beer, this is the so called alpha acid. It comes from the hop and it is responsible for the bitter taste. It decomposes as a result of UV radiation, if a suitable quantity of riboflavin is present which reacts the sulphur in the beer; as a result, 3-MBT is created molecule. The feature of this substance is that it has an unpleasant, stinky smell. To prevent it, they use green or brown bottles. There are certain types with transparent bottles, (such as Corona, Miller), they are made 'light resistant' by using additives called dihydro-isohumulons by the producers.

(Dr. STRÁHL ANTAL (1991) Söripari technológia II., 1991, Dinasztia Kft.)

3.6. Types of beer

3.6.1. Top fermented beers (Ale)

One of the best-known top fermented beers is Ale, the British beer type, the colour of which ranges from light yellow to darker ruby, almost black. Its average alcohol content is 4-8%. It got its name from the phenomenon that during fermentation the yeast emerges to the surface of the fermenting container. We distinguish between more varieties:

Bitter Ale

It is also known as bitter ale, which comes from Great Britain. It has a bitter taste, low alcohol content, and it is very refreshing. The colour ranges from copper through bronze to even ruby. Undoubtedly, it is one of the most widely drunk ale in Great Britain.

Brown Ale

This is the traditional Northern- English brown ale, which is the general favourite of the English mining areas. It has a strong malt taste, it is a full beer, characteristic, and has relatively low alcohol content (4-5%). It is ideal given the chilly weather conditions of the area. Its colour ranges from red to coffee brown.

India Pale Ale (IPA)

A traditional English beer, its history is reflected by its name. In the 18th century, when India used to be a British colony, they put a lot of hop into the beers to be transported there, so that the beer can sustain the long voyage without a quality loss. High hop content, bitter taste and body characterises the beer. Its colour ranges from honey gold to rusty, bronze colour.

Pale Ale

It was in 1642 when they first tried to dry malt with the help of coke. The final product of this process was first called pale ale from 1703. For a long time, bitter and pale ale referred to the same type of beer, due to the pressure coming from the customers merchants started to distinguish between them, especially from the second half of the 20th century. Tart, but different from hop taste characterizes the pale ale.

Belgian Ale

This strong, light coloured, white ale, Duvel is a typical example for this subtype the speciality of which is the 3-level fermentation (warm fermentation, cold maturation, post fermentation in bottle) as well as the different yeasts used. They are usually unfiltered beers; their alcohol content is high even regarding the Belgian beers 8%-12%. For the Belgian ale beers typically spices other than hop are used such as coriander, peel of bitter orange, curacao, and thyme; this way making their aroma balanced, savoury, spicy.

Strong Ale or Old English Ale

It is remarkably strong, top fermented Ale. The colour of it ranges from light amber to russety, the smell from almond to creamy sweet. It is usually bitter, but not too hop tasted.

Mild Ale

It is an English Ale, with a low alcohol content, about 4%. Originally, this denotation meant fresh ale, so accordingly, its colour and strength was rally versatile. As a matter of fact, it was the opposite of old ale. Little hop used features the product, and also the lack of the tart hop taste. Its colour is diverse, ranging from light gold to bronze.

Stout

This ale comes from England/ Ireland, and has an extremely wide scale of corpulent, dark, top fermented beers. It is stronger than the Porter, a fresh drink the taste of which ranges from dry through the silky, roasted to the sweet, creamy, chocolate tastes. Subtypes of it are: Oatmeal, Cream, Dry, Sweet and Imperial Stout.

Porter

This is a version of the Stout, top fermented ale. It got its name from the fact that it used to be the favourite drink of dock porters in England. The colour of it ranges from dark amber through copper to black coffee, with a touch of ruby. It is one of the most juicy, best enjoyable Ale; it tastes sweet with some roasted aroma, which recalls dark chocolate, coffee beans and even baked apple. This is the drink of expressly the colder months, and should never be consumed chilled.

Barley Wine

Even its name uncovers a lot about this very strong Ale. As for its alcohol content, (8-10%) it is similar to

wines. The colour ranges from gold to chocolate brown; they have a very characteristic sweet aroma. Its maturation time is long, just as their shelf life which can reach 10-15 years.

Saison Ale

It is a typical, top fermented Belgian beer type. The post fermentation goes on in the bottle. Different spices, herbs feature the beer.

Scotch Ale

It is the only beer type that is compared to the Scotch Whiskey. It is strongly malted, corpulent Ale, with dark amber rusty colours. It owes its characteristic taste to the strongly roasted barley malt.


Trappist

Trappist beers stem from the real, still existing Trappist monasteries. These are the strong, high alcohol content beers with the brick-red and mahogany colours. They have a special, fruity taste, which is a result of the special fermentation methods. Their alcohol content is about 5-10%, the strength is indicated with the titles Enkel, Dubbel and Tripel. Today we have only half a dozen Trappist beer breweries in Europe, 6 of them are in Belgium and there is one in the Netherlands.

 Achelse Kluis (Belgium)

 Abdij St. Sixtus – Westvleteren (Belgium)

 Chimay – Scourmunt (Belgium)

 Orval (Belgium)

 Rochefort – Saint Remy (Belgium)

 Westmalle (Belgium)

 La Trappe- Koningshoeven (The Netherlands)

(BERRY VERHOEF, (2010), Sörök Enciklopédiája, Alexandra Kiadó)

3.6.2 Bottom fermented beers (Lager)

Bottom fermented beers received their name from the yeasts used in them. These yeasts are most efficient at lower temperatures such as 7-15 °C, and they settle out at the bottom of the fermenting container. The name Lager comes from the German word 'lagern' meaning 'to store', which refers to the longer shelf life.

Pils / Pilsner / Pilsener

The Pilsner was born in 1842 in Pilsen, Bohemia. To reach its today's quality, Bavarian beer brewer masters also did a lot. Pils became a fashionable beer type in 1872 in Berlin, this way it became one of the most popular beer first of the Germans and later of the whole Europe. The important features of it are the exceptionally high hop content, and the long lasting foam. Pils is light beer, it is gold, owning a flowery flavour, it is smooth and elegantly dry, and also has a hop after taste, the alcohol content of which 4-5%. The main commodity of the original Pils is the soft Pils water, zatek hop, malt, and the brewery yeast. Brewing traditionally takes 12 hours followed by a 6-week maturing.

Bock / Bok

Bottom fermented German bock beer, dating back to around the 13th-15th centuries in Einbeck. It was the number one beer of Germany in the 16-17th centuries, and in 1612 it was already made in Munich, too. The main commodity of the original Bock has been Munich malt, ever since. By tradition, this Lager is consumed mainly in the spring months, and it has a sweet malt taste along with a rich fragrance. Its colour ranges from white to dark brown, and its alcohol content is high,

usually 6-8%. The beer is only slightly bitter due to the low hop content which, in addition, is cooled for 45 minutes before use. The beer has more subtypes, such as Doppelbock and Eisbock both of them as a stronger, more corpulent variety of the Bock with higher alcohol content. The speciality of their brewing process is that first a part of the water is frozen and then it is filtered to reach a higher aroma concentration.

Dry Beer

It is popular in the USA and in Japan. Its special as well as cost efficient surrogate commodity is the rice flakes which is responsible for the exceptionally clean, vibrant, neutral, in fact featureless taste.

Helles

It is a real Munich Bavarian beer. It is particularly light Lager with 5% alcohol content. Its hop content is lower than the Pils', but the malt content is higher.

Schwarzbier

It is a bottom fermented, particularly dark beer type, which is mainly popular in Germany and Japan. In its taste roast malt is dominant, with a touch of dark chocolate. Its alcohol content is 5%.

Kellerbier

It is an unfiltered German lager type which is draught in breweries and their cellars. It has a markedly hop taste.

Marzen / Oktoberfest

This lager beer comes from Munich, Germany and is known as Oktoberfest beer, too. Its name refers to March; that was the month when it was still possible to brew beer which was stored later during the summer in cold caves, cellars. When at the end of September the new beer started to be brewed the remaining March beer was consumed at Oktoberfest festival. This

festival comes from 1810 when Louis crown-prince had his monumental wedding celebration in Munich. It is moderately corpulent, sweet-malt taste beer. Its colour scheme ranges from orange to copper, and its alcohol content is minimum 5% but usually rather higher than that.

(Source: <http://www.serneveles.hu> [accessed February 10th 2018])

3.6.3. Spontaneously fermented beers (Lambic)

This type was born in Belgium, in the 17th century. It was named after the village Lembeek where it was first brewed. It is a very dry, slightly sour, almost still beer with a fruity aroma. Unlike the traditional Pils or ale beers, where in order to begin the fermentation carefully selected and stored beer yeast is added to the beer liquor, lambic beers go through a spontaneous fermentation. After brewing, the beer is exposed to natural yeasts and bacteria that can supposedly only be found in the valley of river Zenne to the south of Brussels. The spontaneous fermentation process gives the beer the special dry, acerbic taste and sour after taste, reminiscent of wine or cider. The different types of this beer are Gueuze, Faro, Mars and the fruity beers.

Gueuze

In fact it is nothing else but the mixture of the new and the old Lambic Ales, so it combines the liveliness of the new (one-year old) Lambic and the characteristic taste of the old (two-or three-year old) Lambic. Regarding colour: it ranges from gold to amber, regarding the taste it is tart with the touch of sweetish. There are many varieties of this beer depending on the ratio of the two Lambic beers. Steering results in secondary fermentation processes going on in the bottle (similarly to the champagne. As a result of that, the carbon-dioxide stays in the bottle and dissolves in the

beer. Maturing in the bottle takes at least one year, but the shelf life of the beer can be as long as 10-20 years. Owing to the secondary fermentation gauze beers have exceptionally fine, small bubbles.

Faro



It is a low alcohol content, (. 2-5%), slightly sweetish table beer that comes from Belgium. It is made from the base lambic beer by adding brown sugar, molasses or caramel. As for the colour, it is usually between gold and light amber. It is often pasteurized to avoid the fermentation of the added sweeteners. Traditionally it was made from clean, 3-year old lambic or marc beers and was put in circulation as a draught beer. In the past, sugar was added to draught beer by the customer, and it was pestled so it increased neither the alcohol content, nor the fizziness. It is a very rare beer specialty, hard to obtain.

Mars

Mars usually referred to the weaker, lower alcohol content beers, which is no longer present in commerce nowadays.

Fruity Beers

Lambic beers to which different fruits were added after the first fermentation are:

-  Kriek – cherry
-  Framboise – raspberry
-  Pêche – peach
-  Cassis – blackcurrant
-  Druif – grapes or raisins
-  Aardbei – strawberry

Fruit can be added either in its natural form, or sweetened syrup. Other, but rarer flavours are the apple, banana, pineapple, plum, apricot, lemon, mango, passion fruit, chocolate and honey. By adding the fruit

syrup containing sugar a secondary fermentation begins in the lambic beers; the syrup then may pass of fin the bottle or barrel.

(BERRY VERHOEF, (2010), Sörök Enciklopédiája, Alexandra Kiadó)

3.6.4. Hybrid Beers



Wheat Beer

There are some beer types in which certain elements of the bottom and top fermentation are combined. As an example, there is wheat beer, which is a top fermented beer originally; but sometimes to reach a better fermentation, bottom fermenting yeasts are also added to it. Besides that, during fermenting spontaneous lactic fermentation also goes on. Originally, this is a German beer, the Northern-German and Southern-German variants of which are known; but by today it is also wide-spread elsewhere. It has a long past since probably in the Bavarian monasteries wheat beer was made much earlier than barley beer, but the malt of the two types of cereal were not mixed then. In our days this beer type is not necessarily made only from wheat but also has 50% wheat malt in it, certainly with added water, hop and yeast. It does not contain any flavouring. It is a tart, dry beer, the colour of which ranges from light yellow to dark yellow. We have filtered and unfiltered variants. The unfiltered is called Hefe Weizen, the filtered one Kristall Weizen. By tradition we must not put anything into the wheat beer. The taint coming from the production used to be taken away by adding lemon slices to it, but by our days the production has greatly improved and contrary to the public opinion lemon does not suit any wheat beers.



Steam Beer

Steam Beer, unlike the previous ones, is made with bottom fermentation but at the temperatures used for top fermentation. Steam Beer was born in the USA. The reason for the high temperature fermentation is that when it came into use in the just forming USA refrigerators, ice, were not really available so making beer was only possible in this way. The name „steam” refers to this production technique of the 19th century. Steam beer is a soft, aromatic beer, the colour of which ranges between gold to amber; its alcohol content is 4-5%.

Rauchbier

These smoked beers can be Ales as well as Lagers. Their smoky aroma is owed to the barley malt dried in a furnace. In Bamberg, Germany, beer brewers use beech for heating the furnace, whilst in America rather hickory, apple, alder and maple, in some cases even turf flame is used.

Seasonal Beers

They are special, seasonal beers being sold on special occasions such as Christmas or Easter. Generally, special spices like nutmeg, cinnamon, coriander, ginger are featuring them.

Bio Beers

The commodities (malt, hop) used can strictly and exclusively come from controlled organic farming. Justified GMO-free beer yeasts and enzymes can be used and some of the aggregates can be used with a special permission only. The taste of the bio and non-bio beers is the same. Beer breweries must be registered in the controlling system.

Alcohol-free Beers

In case of normal beers the dry matter content is around 11 per cent in the wort while the alcohol-free beers are

made of 6% beer liquor. Incidentally, alcohol free beers may also contain minimal alcohol content (maximum 0.5 volume percentage).

(Source: <http://people.inf.elte.hu/pma/sortortenet.html> [accessed February 10th 2018])

4. The Hungarian Beer Consumption Habits In General

One of the alcoholic drinks known as the cheapest is the beer. Typically, it used to be the companion of pubs and physical work. Today, due to the explosive growth of craft beer and small scale beer brewing, gourmets and experts like tasting the more and more expensive beers on special venues.

Craft beer in Hungary is about to go on the same path as wine had done earlier, and with just a couple of years arrears did brandy. The wine or beer preference of people can be measured in periods throughout the years. Nowadays beer is preferred to wine. Wine became fashionable after the first wine festivals. It was fashionable to speak about it, to be an expert of it, to search the best quality and exclusivity. The same process began in case of beer, too, a few years ago. Although after the change of the political system there were nearly 400 craft beer breweries in our country due to the favourable legislation, today we only have one-tenth of them. In 1994 the Craft Beer Breweries association was founded and has been operating ever since; but the breakthrough was made by the novel beer breweries and beer festivals only a couple of years ago. In 2011 the Buda Castle Beer Festival (Budavári Sörfesztivál) opened its doors. The unexpected success generated newer and newer events country-wide. The number of beer festivals organized is growing year by year. (Source: <https://vs.hu/gazdasag/osszes/uzlet-vagy-kultura-atalakuloban-a-sorfogyasztas-0715#!s> [accessed February 14th 2018])

The trend in our country is just like it has been in the Western countries for years. Even with a delay of about 20-30 years, but Hungarians also start to get acquainted with craft beer breweries, guerrilla beer brewing and they are looking for flavoured or special beers. Guerrilla breweries are small initiatives which do not have an own technology to make their beer. They take the ideas and recipes into the small scale beer breweries where for a fee a certain amount of beer is brewed and bottled for them. After that, they can freely sell their product anywhere where there is demand for that. Similar processes were going on in America a couple of decades ago. There 10 per cent of the profit comes from the craft beer breweries. (Source: <https://vs.hu/gazdasag/osszes/uzlet-vagy-kultura-atalakuloban-a-sorfogyasztas-0715#!s> [accessed February 14th 2018])

Large-scale producers are looking for the higher profits instead of quality which can generate drawing back of the consumers tired of the taste of cheap beers. One of the innovations of the past few years is the spreading of the drinks boosted with fruit aroma. They filled a significant market niche. The decline in quality can also be detected in the decreasing alcohol content. Since in our days this is what determines the excise tax to be paid, during a few years the degree of alcohol of the beers found in shops significantly decreased almost invisibly. Despite their enormous growth the ratio of the craft beers is still infinitesimal today. Their market share was estimated merely 0.35 per cent some years ago; by today it has reached the 2 per cent. In our days about 40-60 craft beer breweries work in Hungary, which is a nice number but still evanescent compared to the 4000 American or 1300 German breweries. Although the craft beer consumption basically began in the 2010s, even on the turn of the millennium the consumption already increased. It has remained so later on when there was a setback in beer consumption. (GYÖRFI ZOLTÁN, (2006) A hazai söripar átalakulása a nemzetközi tendenciák tükrében, Ph.D. értekezés)

According to the representative of Dreher Beer Breweries (Dreher Sörgyárak Zrt) they consider craft beers not only the competitors but also partners. Their spread, the appearance of the new products is beneficial for the whole of the industry by increasing the popularity of the beer as well as its market. The issue is approached similarly by Heineken, too. They consider the presence of craft beer breweries important because they make beer culture more diverse, and they have more possibilities for innovation, experimenting with new tastes. The spread of craft beer shows and serves the improvement of beer culture. Therefore, they occasionally co-operate with them; for instance in organizing the former Budavári Sörfesztivál. (Buda Castle Beer Festival). They trust in the strengthening of the craft beer makers that produce good quality beers since it builds up customer trust, which is the common interest of the whole industry. Regarding quality, Heineken does not distinguish between import, home, craft, or large-scale products, only between good and bad quality beers. They do not consider craft beer producers their competitors because the customers are not the same: small scale breweries bring specialities, interesting products while large-scale producers mostly produce for the mass. . (Source:

<https://vs.hu/gazdasag/osszes/uzlet-vagy-kultura-atalakuloban-a-sorfogyasztas-0715#!s> [accessed February 14th 2018])

Although it had some effect on it, but in fact, even the crisis did not push back the demand. Statistics serve as evidence for that. In 2003 the whole of the import increased by 216% most of which coming from independent suppliers.

The next big breakthrough was done by the business of Csakajósör Ltd which was considered new of its kind that time. The different import and home-made craft beers became easily available for anybody after that. The originally little corner shop today operates on the double its previous territory.

With all that, home beer consumption has been continuously decreasing since the beginning of the 90s. After 1950 for 40 years the beer production and consumption was constantly growing in Hungary. By 1990 beer had become the most popular drink; the consumption per person was 106 litres then. It barely reaches 60 litres today. However, according to the CSO it is still the first among the alcoholic drinks. Joining the EU in 2004 speeded up the relapse since the excise tax of the beer grew significantly, and a dumping of the cheap and low quality canned beers from abroad began. From the new market mainly Germany benefited because a much higher deposit for this type of packaging was levied just then. Among the European superpowers Austria is the only one where the market has been expanding since 2010 year by year; thus Austria came second on the beer consumption world list. (GYÖRFI ZOLTÁN, (2006) A hazai söripar átalakulása a nemzetközi tendenciák tükrében, Ph.D. értekezés)

5. The Main Differences Between Craft And Large Scale Beer.

Craft or small-scale beer breweries are the ones the annual production of which does not exceed 2 million litres. By today the border between the craft and commercial beer is almost impossible to define. Not long ago, the regulation was changed in order to make it possible for the Pécs Beer Breweries classified into the small-scale industry. Needless to say, that the annual tax and contributions of a small-scale beer brewery are much lower than that of a multinational company. These small beer manufactories try to pay special attention to the recipes and quality of their beers; because of that they can have a more improved quality than the large-scale beer breweries. (Source: <http://gaultmillau.hu/mese-habbal/a-kezmuves-sor-vege> [accessed February 18th 2018])

However, we need to be careful when using the word „craft”. Many places already try to avoid the description of the word „craft”. They try to replace it with the word „small-scale” which also started to lose its meaning and value. If we get just a little taste of the new age beers, we can easily see this trend. Craft beer can be outstandingly good, and very bad quality at the same time. Beer can be made by a young Titan putting in it his heart, or an enthusiastic, but amateur beer brewer; but also a businessman ready to sell a trashy product to the customers. Craft beer can be made by anybody and almost all the beers can be called craft beer. The situation is not much better in case of the word „small-scale”: there is an enormous difference between the small-scale beers regarding the capacity of the breweries. In fact, we lump together small scale Hungarian breweries with the capacity of 800 litre and the American craft breweries that exceed the capacity even of the previously already mentioned Pécs Beer Breweries. (Pécsi Sörfözde). We can hear that a Csíki beer is called craft beer just like the product of Monyó Beer Breweries or a Balkezes Beer, the best we can do perhaps not to make a big deal of it. The word served its time. Apart from that, I am going to use it many times in my thesis since it is the only way I can describe the term in question. (Source: <http://gaultmillau.hu/mese-habbal/a-kezmuves-sor-vege> [accessed February 18th 2018])

One of the world’s most famous craft beer manufacture the BrewDog Beer Brewery for example built up its campaign to compete with the big producers.

However the Brew Dog Beer Brewery also exceeds the small-scale quantity but they kept the approach, the technology and a quality based on which they can be listed as craft beer maker. It is worth mentioning that we speak about a Scottish beer brewery operating with investors' support; they search their investors with stock exchange or rather start-up methods. In case of success dividends proportional with the investment is paid. Looking at the indicators of the last year, success is almost guaranteed.

As I was discussing it earlier, beer brewing was started in small quantities by the monks in monasteries in the middle of the Middle Ages. They offered their potion at a high price and first only the privileged could afford to buy it. Later the beer had such popularity that the capacity of the monasteries was no longer able to produce the needed quantity. The provinces gave the right of brewing for a tax fee to the manufactories and cities. The manufactories started to improve throughout the centuries and beer breweries and later beer factories were established. The mass production of the beer changed the taste of the beer to make it more and more neutral. Some people, however, were still looking for the uniqueness and specialities. This is how we got back to the small-scale breweries where processes and good quality of the commodities are cared of more. Thereby the tastes and the recipes are different from the so called usual ones. Perhaps with this story crossing centuries the appearance of the today's craft beer breweries may be explained.

Although Békésszentandrás Sörfözde was founded in 1993, the premonitory sighs of the craft beer arrived in Hungary in 2010. The quality was not always satisfactory; it was volatile due to the standard of changing hygiene and commodities. This is how MONYO Brewing Company was established during less than a year by Ádám Pein, Antal Németh and Zoltán Elek in 2014 from practically nothing. The main reason for establishing the breweries was that Adam got fed up with not being able to offer specialities to his customers in his pub. The craft beer's quality was very changeable and the beer breweries could not always create the same tastes. With this and the Fözde Fest in 2004 a new process started leading to establishing the today existing Fözdepark. Fözde Park was formed by moving a number of smaller breweries to the location of the former Globus factory in Kőbánya. They rent venues to produce their beers here.

The previously mentioned MONYO Brewing Company gave the common ground to the breweries and also settled them in an old industrial location which is a perfect venue for an enterprise like this. Such a location has perfect logistics possibilities, too, and we should also mention here the co-operation and mutual support the breweries can offer to each other on daily basis. Globus can have a historical importance since at the beginning of the century beer brewing rally took place here. This phenomenon may be observed in other countries as well, and now it can be considered almost fashionable. Wherever possible, this kind of location is chosen by the breweries due to the capabilities mentioned above.

Craft beer has a huge turnover in Hungary; as long as the 1-2 per cent market share mentioned above can be considered huge. Basically, this turnover may be considered too big, so the breweries are starting to think about selling their products abroad. The fact is that newer and newer craft beer and small –scale breweries are being open almost constantly in Hungary but the market is not expanding in such a rhythm. It can be stated that the market expansion is much slower than the development of the technology. However, this raises a question: is there room for expansion of the market?

A key element of the principles of all the home craft beer breweries is specialization. it means both quality, type and price specialization. Each beer manufactory must go through a marketing categorization. For example, we must mention here that the Békéscsaba Beer Brewery opens doors for the MONYO Brewing Company. Szentendrasi represents a middle quality in the craft beer brewing market. It is sold in a great number of places, and as a result, they can reach a great number of people. Those who got acquainted with craft beer with their help and would like something different, or even better, they can step higher, and in this case glance at MONYO Brewing Company.

Similarly, when a big brewer producer launches a new product, the small-scale producers are happy to see that since it demonstrates not only a new product but a new market, too. This is what happened to the Óvatos Duhaj IPA launched by the Soproni Sörgyár not very long ago. They launched a beer type yet not too popular in Hungary, dressed in an average gown. People took to it, and Soproni occupied the market. People, who liked it but wanted to try a higher quality at the

same time, could bravely turn to the IPA made by craft beer brewing companies. However, the one thing craft beer breweries cannot keep up with the large-scale industry is the price competition. Howsoever the quality of the Monyó, Hedon or Big Foot Beer IPAs is higher Soproni is still able to bid under them. This is vital for people in the present financial situation. It is not sure that they choose the craft IPA since the difference in the quality is not so noticeable for them as opposed to the Soproni Óvatos Duhaj; even if it means a minimal difference in price. Since brewing craft beer in Hungary today is considered expensive, this difference is only minimal or negligible.

6. Selling

We can claim with a serene heart that we live the age of breweries. I mean the continuous growth of the number of the newly opened small-scale breweries mentioned before. They try to exceed each other regarding quality or try to supply the same quality at a lower price. However, the earlier mentioned 2 per cent market share of the Hungarian market is not enough for that. The market may change from month to month. The number of the pickup places is also growing to a remarkable extent, but the consumption is not always able to keep up with them. During my visit to the MONYO Brewing Company, Sales Director Péter Lakatos said that they for instance, pay attention to selling abroad in order to be able to keep the selling volume.

6.1. Gate crash

Gate crash in a market may seem to be easy for us for the first sight but in fact it is not so simple. Hop Fanatic beer brewery tried the method of tap occupation, which means giving their first potions to pubs and bars dealing in different craft beers and small-scale beers. All of that being done very cheaply or free. The quintessence of that is that the beer appears as an advertisement in a given place, it is consumed and if it is successful, the bar or pub will order the next supply certainly at full price. The only problem of this was that the stock was put in so many places and it was not really ordered after that; so there was no real profit made. Brewing had to be stopped for half a year because they did not have the financial liquidity to make the next potions. Later an investor saved them and they have been operating ever since. (Source: Péter Lakatos Sales Director MONYO Brewing Company)

6.2. Own Sales

During the one-hour discussion at MONYO Brewing Company I got informed that most of the craft or small-scale breweries stand on more legs regarding sales. These legs are upmost important because they make it possible for them to reach customers most efficiently. One of those legs is the own sales. Earlier it was not necessary to have those legs for the customers came and placed their orders all by themselves. It was typical mainly for the period between 2014 and 2016. With the above mentioned

growth of the number of the breweries it can be considered less and less usual. MONYO kept the direct sale method with Cas&Carry but it is no longer typical. Cas&Carry means for example that the company does not do delivery. They produce and put together the order but the delivery must be solved by the customer. (Source: Péter Lakatos Sales Director MONYO Brewing Company)

6.3. The Distributors

Contracting distributors is much more important. It is a kind of outsourcing sales. It is not necessary to visit pubs, bars, restaurants, in person, liquor stores, supermarkets and all the others. A sales company dealing with it can do that more effectively. It is aware of the situations, smarter, and knows, for example, when a new place is opened where they can immediately put the beers they distribute. It has an own warehouse with logistics and they have a wide range of additional advantages. It can buy beer at a lower price but purchases great volumes.

Sometimes, however, the purchase request of some drink wholesalers must be refused. They buy and sell different kinds of beer but the craft beer producers would not like to see their beers right next to not so high quality beer. It is a principle which must be kept if we want to save our quality, good reputation or the role played by craft beer in the small-scale beer circulation. An illustrious representative of craft or small-scale beer merchants is Artizan who only deals with craft products. (Source: Péter Lakatos Sales Director MONYO Brewing Company)

6.4. The Festivals

Different festivals also serve as advertising opportunity for the breweries. Great many gastro and other festivals give place to small-scale or craft beer sales desks. However, the most important among these festivals are the ones specialized in small scale or craft beer. I used the word „advertising opportunity” because the previous experience of breweries asked show that a festival can be successful even when there is no profit but at no loss, either. This way the beer can reach newer customers for free. To avoid misunderstanding, it is certainly possible to make profits, but it is not so typical. The rental fees of exhibition stands

are so high that it cannot be compensated even with very high or too high prices.

At the same time they do not HAVE TO be present at all the festivals. In the first stage we would like to be present everywhere, of course; to get into people's minds and the small-scale or craft beer circulation. After a certain time and improvement in reputation the brewery can select where to rent a stand and where they do not want to appear. However, there are festivals that have a great influence and work with the method of invitation. Getting into these festivals is a great honour. As an example, Brouwerij De Molen festival in the Netherlands, invite 20 breweries. 19 out of the 20 are usually highly reputed breweries with well-known names. There is a competition for the 20th place among the smaller, emerging breweries; the best one of which can represent itself on the festival of the given year. (Source: Péter Lakatos Sales Director MONYO Brewing Company)

6.5. The Competition

With this, we have arrived at the competition. Breweries nominate their beers in different competitions. They can win different supports besides the recognition on these competitions. Such competition is for example the festival having been organised every other year by Association of Small-scale Breweries (Kisüzemi Sörfőzdék Egyesülete) for twenty years.

The competition held by tradition in Miskolc, has improved to be one of the most important beer competitions of Central Europe. On the first occasion there were fewer than 40 beer types nominated in three different categories. In 2012 there were 66, and two years later nearly 90 nominations in 5 categories.

The International Competition of the Association of Small-scale Breweries also uses BJCP. (Beer Judge Certification Programme). This is a judgement and rating method worked out by the American home brewers, based on which about 6000 official international competitions

have already been organised worldwide; among others the international competitions of the Association of home breweries.

It is common for the scorings of the competitions that they pronouncedly take into consideration the scores given to the tastes and aroma. The A 2008 version of BJCP classifies the beers into 24 main, and 2-6 sub categories. The main aspect of the judgement is to what extent the given beer meets the requirements of the category. A type description form is used for each and every category describing the features of the given type. It determines what smells, tastes may occur as well as the content compulsory for the beer and what should be considered a taste error. In 2015 BJCP issued a new table further specifying the type division.

According to Péter Lakatos Sales Director of MONYO Brewing Company, over a certain level there is no need for a brewery to participate in every competition. There is a great deal of challenge and for every brewery there is a competition where they can win a prize. However, only the more serious competitions are able to bring a greater publicity.

(Source: <https://www.bjcp.org/>)

6.6. The Education

Education is very important. We mean by that a process when the staff being in direct contact with the customers are trained, educated. They can be shop assistants in a shop, bartenders, innkeepers or waiters and many others whose task is to sell the product. They must participate in training days to learn what they are really selling and to be able to offer their beers credibly. What we mean by education is not necessarily sitting in school rooms, and being taught by teachers. It is rather about the videos and posts appearing in social media that provide lots of information about the product to be sold. At the same time, brochures and the traditional teaching methods are also present and offer lots of information and help.

(Source: Péter Lakatos Sales Director MONYO Brewing Company)

6.7. Other Customs, Concepts

From the breweries visited by me Big Foot and Legend put greater emphasis on the own sales. The ratio between the own sales and retailing is 70 % – 30 % or 80 % - 20 %. They used to cooperate with wholesalers and distributors but the success did not meet their expectations. Nevertheless, if a retailer knocks on the door who would like to contract for continuous volume and is a reliable partner, they are given 101% attention and care. (Source: Gyula Branda Owner Big Foot Brewery)

7. Consumer Survey

The main purpose of the research I have done during writing my thesis was to get familiar with the role of craft beer in the Hungarian hospitality and also to get to know the small scale beer consumption habits of Hungarian people. I wanted to explore how the beer breweries pass their products to the different catering units and to what extent those products are well-known among people. In addition, I wanted to get an answer to several questions of mine regarding the present and the future of craft beer:

- 🍺 Do small scale factories and manufactories have a realistic chance to increase their market share with the presence of large scale beers?
- 🍺 What role can craft beer play in the Hungarian market in the future?
- 🍺 How much market share can it obtain for itself?
- 🍺 Does craft beer have any opportunities for growing, developing, and are these opportunities feasible?
- 🍺 Does craft beer have or will it have a future among young consumers?
- 🍺 Is the new generation more open to consume craft beer or do they turn to the large scale beers, too? What is the most effective advertising method that can make people more familiar with craft beer?

To answer these questions, I have conducted a survey by using questionnaires. I got to the respondents through the social media. The Internet made it possible for me to conduct the survey more quickly and more efficiently.

7.1. The purpose of the questionnaire was to find out about:

- ✍ The characteristic features of purchasing craft beer
- ✍ Characteristics of craft beer consumption
- ✍ Discovering the potential consumers' circle of craft beer
- ✍ Making consumers familiar with craft beer and increasing its popularity among consumers

7.2. Hypotheses:

1. I presumed that young people prefer consuming craft beer to large scale beers.
2. The majority of people questioned are influenced mostly by the price of the product rather than the quality, when buying beer.
3. Craft beer consumption is rather typical on festivals.
4. Craft beer types are less well-known by consumers therefore discovering and defining the most efficient advertising surfaces and methods would be really important.

7.3. The Questionnaire

The survey was conducted in February, 2018, between 14 February and 22 February. I consciously kept the anonymity and the voluntary feature of the questionnaire. The final questionnaire contains 17 questions that reached the persons questioned with the help of the social network and the Internet. Data collection was this way fast and efficient. Data analysis and evaluation was also quick since I made the questionnaire with the help of Survio Software; it was a great help during the whole process of the survey. As part of the method, the questionnaires appeared in the system after being filled in. The data collected were easy to analyse with the help of the excel table containing all of them. According to the structure of the answer options, there were open and closed questions used in the questionnaire. I used open questions exclusively in such cases when I was interested precisely in the number of known craft beer brands that can be found on the market. According to the scale type the nominal questions were representative. I preferred selective questions to combinative questions. As for the structure of the questionnaire, the personal questions were followed by topical questions.

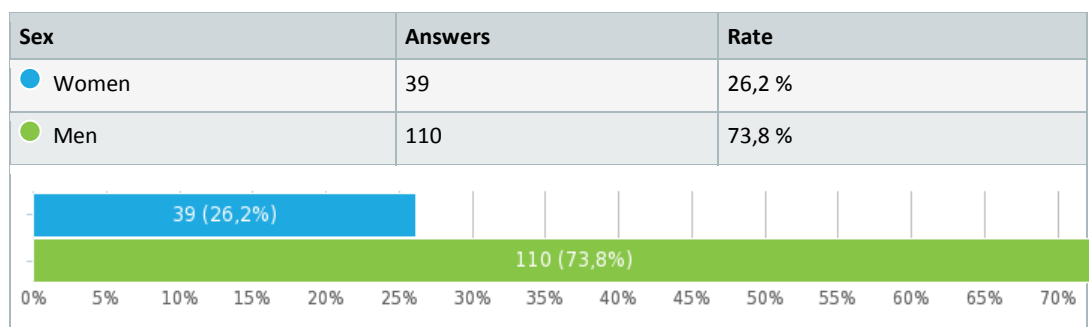
7.4. Evaluation

I have analysed 149 questionnaires. After analysing the data, I made account and percentage summaries in each and every case with the help of the programme; eventually, I found the following results:

What is your sex?

When I was writing this question I thought that just men will complete my survey. After the answers started to arrive I realized that also women like beer too. As shown in Chart 1 (Evaluation chart to: What is your sex?) the majority of the respondents were men, 73.8 % (110 people), the ratio of women was 26.2 % (39 people), based on which the following consequence can be made: men are more interested in beer consumption than women.

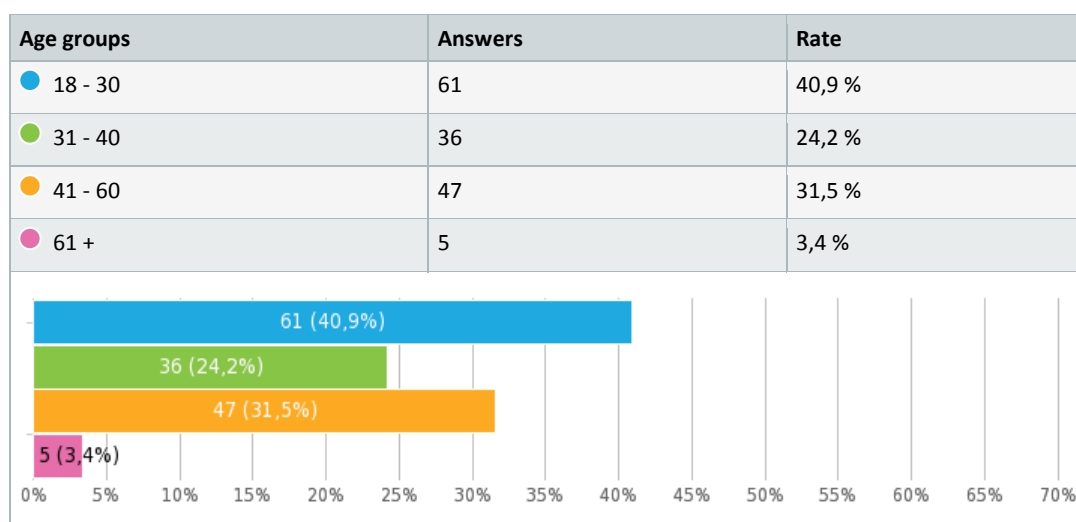
Chart 1: Evaluation chart to: What is your sex? (Source: Author's own research)



How old are you?

My prognosis confirmed. The most of the younger generation representatives made the survey. As shown in Chart 2 (Evaluation chart to: How old are you?) the greatest percentage of the respondents, which is 41 %, is in the age group 18-30. A significant number of people aged 41-60 also filled in the questionnaire, which amounts to 31.5% of the respondents. The fewest responds were given by the age group over 61; it makes only around 3.4 %. The reason for this is that the survey was conducted through the Internet and this age group – due to the age characteristics- does not use the Net so much. However, the ratio of respondents among people aged 31-40 was 24.2 %.

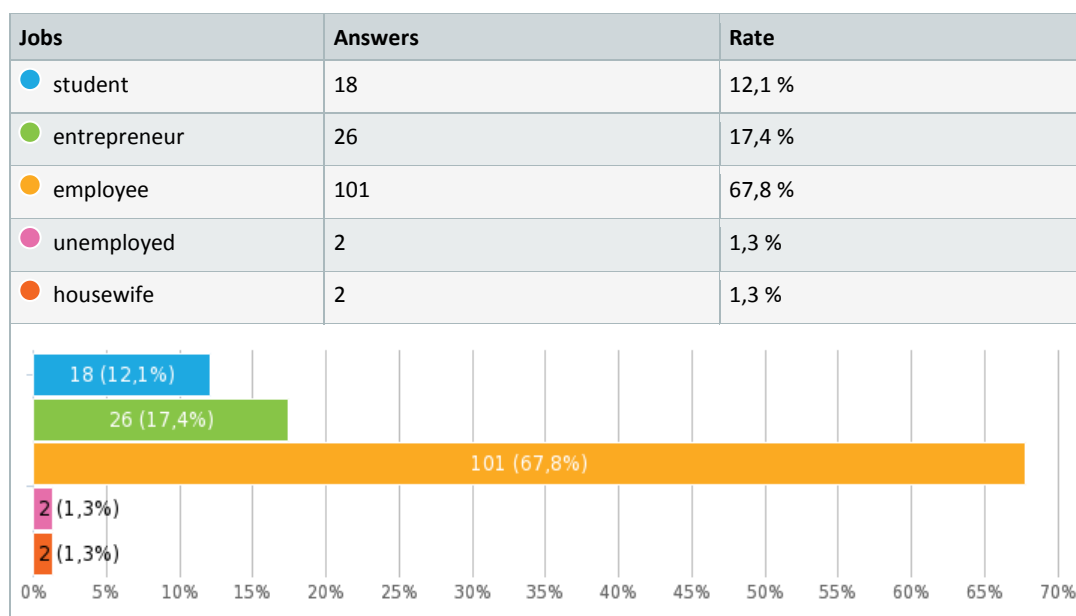
Chart 2: Evaluation chart to: How old are you? (Source: Author's own research)



What is your job?

I had completely no idea about the outcome of this question. In my opinion any kind of workforce can like beer. As shown in Chart 3 (Evaluation chart to: What is your job?) 67.8 % of the respondents were employees. 17.4 % were entrepreneurs and 12.1 % students. This is a positive fact from the point of the evaluation of the questionnaire since most of the respondents are potential customers.

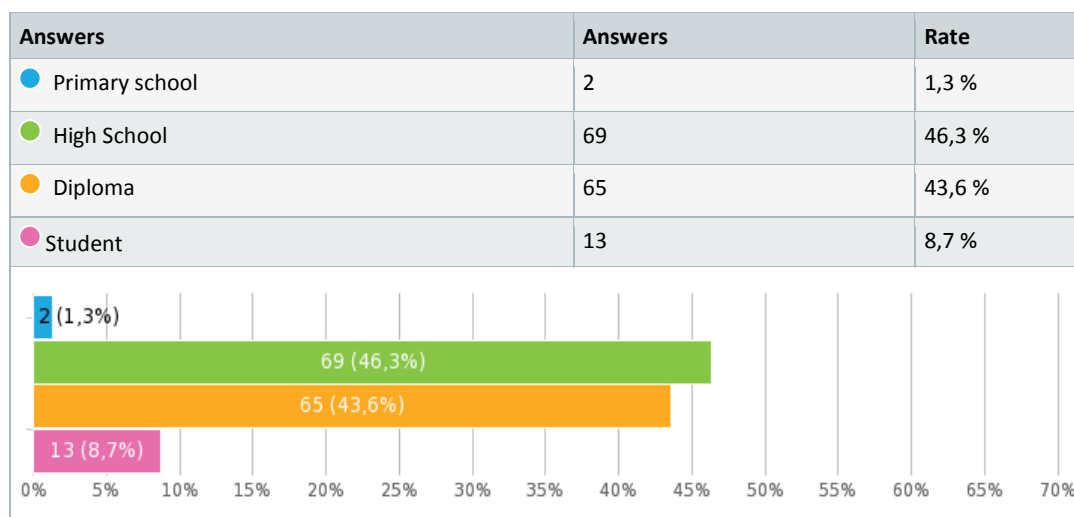
Chart 3: Evaluation chart to: What is your job? (Source: Author's own research)



What is your highest qualification?

I think qualification also not important when we talking about taste. The ratio of the respondents was nearly the same regarding people with a diploma and those with secondary school qualifications. As shown in Chart 4 (Evaluation chart to: What is your highest qualification?) the former ones amounted to 43.6 %, the latter one 46.3 %. The number of student respondents was pretty small.

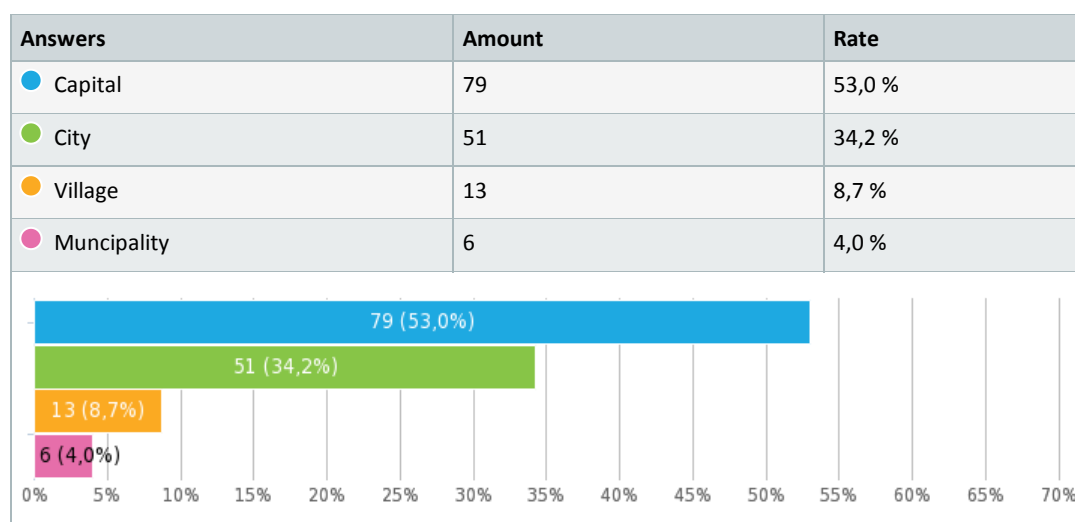
Chart 4: Evaluation chart to: What is your highest qualification? (Source: Author's own research)



Where do you live?

The place where we live plays role in the thing what kinds of alcoholic drinks do we prefer the most. Of course it is more about the landscape than the settlement. As shown in Chart 5 (Evaluation chart to: Where do you live?) 53 % of the respondents live in the capital city, and the fewest responds were given by people from villages.

Chart 5: Evaluation chart to: Where do you live? (Source: Author's own research)



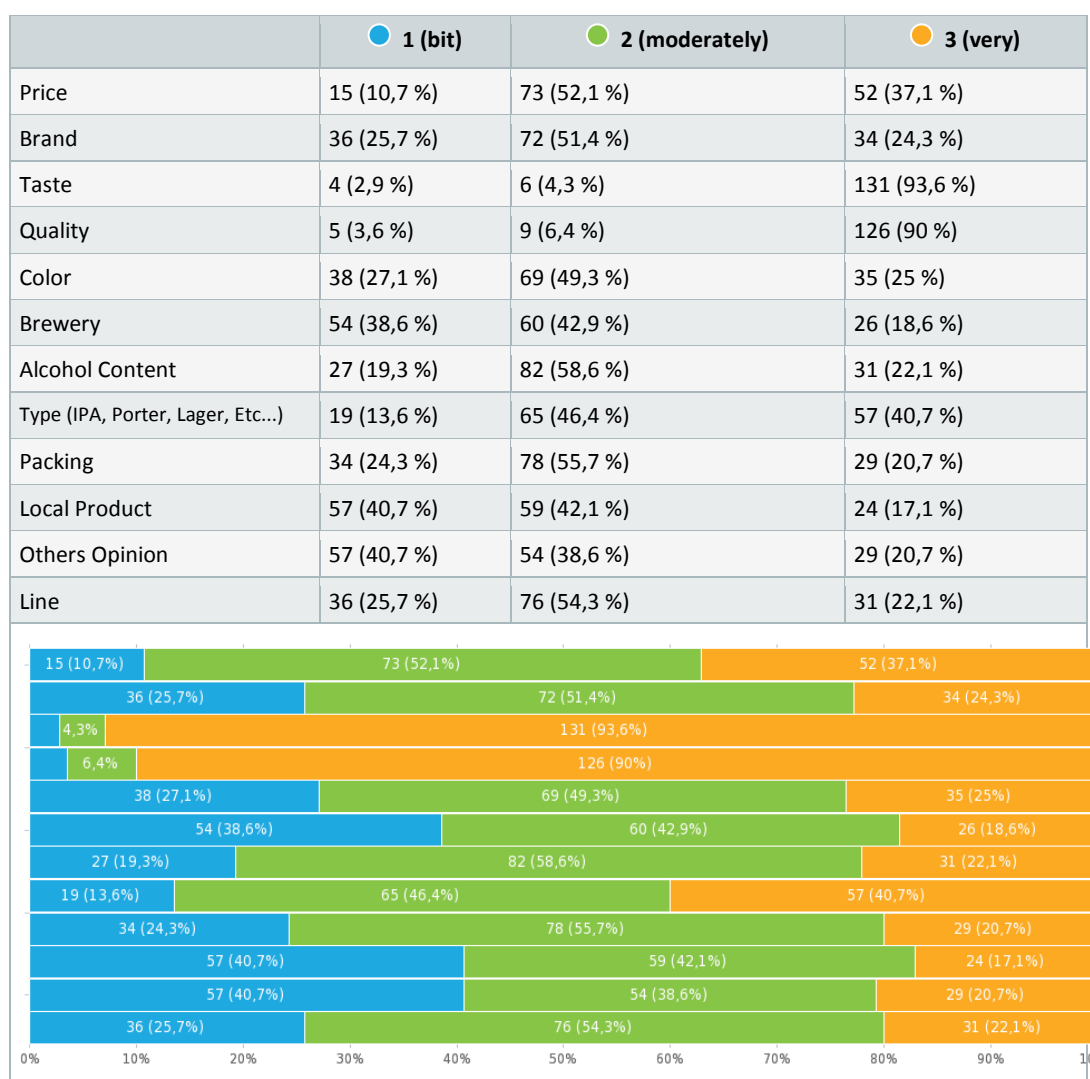
How important is for you the following feature?

The answerer had the opportunity to give more than one answer. As shown in Chart 6 (Evaluation chart to: How important for you the following feature?) the price of the craft beer is in the less important category according to 10,7 % of the respondents. That leads to the conclusion that when they buy beer they make their choice not by the price. Brand name is a similar category, this is not very important for 25.7 % of the respondents. As for little per cent as 24.3 % of the respondents consider the brand of the consumed beer important. However, the taste is determining, according to 93.6 % of the respondents this is one of the most important features. An insignificant number of the respondents, merely 2.9 %, said that taste is not important. Quality is also a very important characteristic feature: 90 % of the respondents feel that quality of the beer consumed does matter. Very few people, scarcely 3.6 % said that quality is not important. The producer is important for 18.6 % of the respondents. For the majority of the respondents (42.9 %) it is moderately important. Alcohol content is not so important for 58,6 % of the respondents either, but 22.1 % consider it does make a difference. Type (IPA, Porter, Lager) is not significant for 13.6 % of the respondents, not too important for

46.3 %. However, 40.7 % of the respondents said it is really important. Packaging and appearance are not the most important features of the beer, either. Only 20.7 % of the respondents consider it important, and 55.7 % consider it less important. From the aspect of producing the beer, local production is important for 17,1 %- and another 40,7 % think it is not important at all. Others' opinions do not influence customers considerably. Altogether 20.7 % say it is not important what others believe about the beer. A conclusion can be made that in case of craft beers customers are influenced not by the price but rather the taste and the quality.

Chart 6: Evaluation chart to: How important for you the following feature?

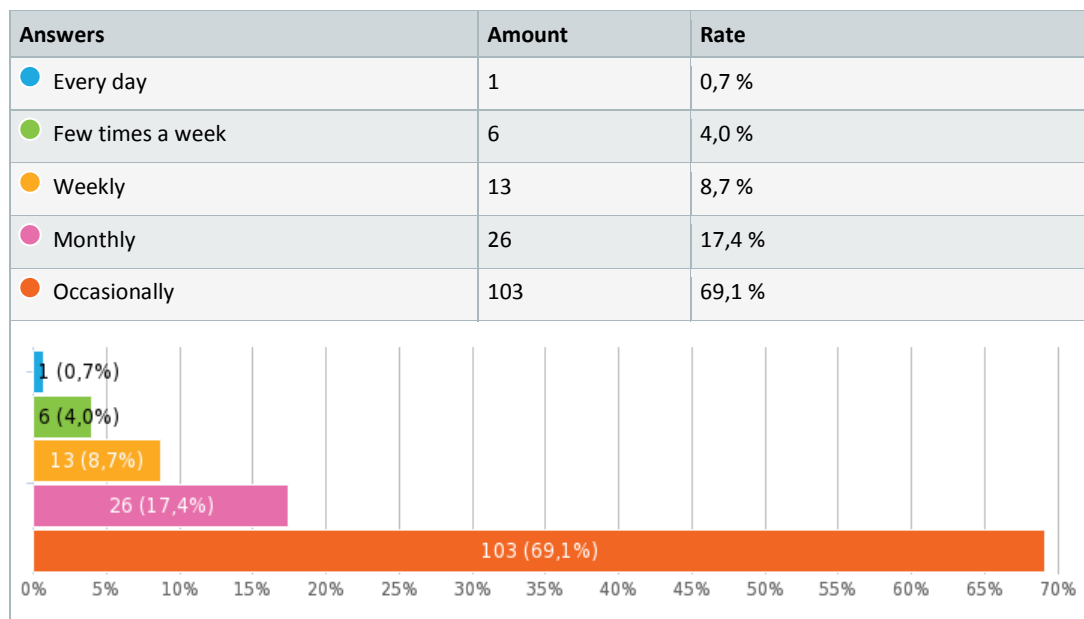
(Source: Author's own research)



How often do you buy craft beer?

This question brought my expectations. Craft beer drinking is not in the people's everyday habit. As shown in Chart 7 (Evaluation chart to: How often do you buy craft beer?) the majority of the respondents, 69.1 % say that they consume beer occasionally. 17.4 % drink craft beer about once in a month, and 0.7 % of the respondents on a daily basis. It indicates that drinking craft beer is rarity, rather connected to special occasions.

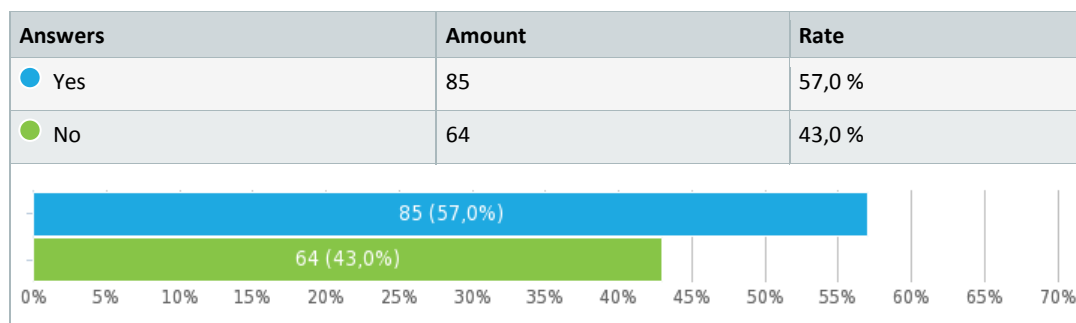
Chart 7: Evaluation chart to: How often do you buy craft beer? (Source: Author's own research)



Do you check out the composition of the beer before buying?

As shown in Chart 8 (Evaluation chart to: Do you check out the composition of the beer before buying?) 57 % of the respondents want to check the components of the given product before buying, while 43 % of the respondents do not do so. It allows making the conclusion of a conscious purchasing behaviour. This question brought almost an equal result. I never thought that people do care about the products ingredients as much as the survey shows.

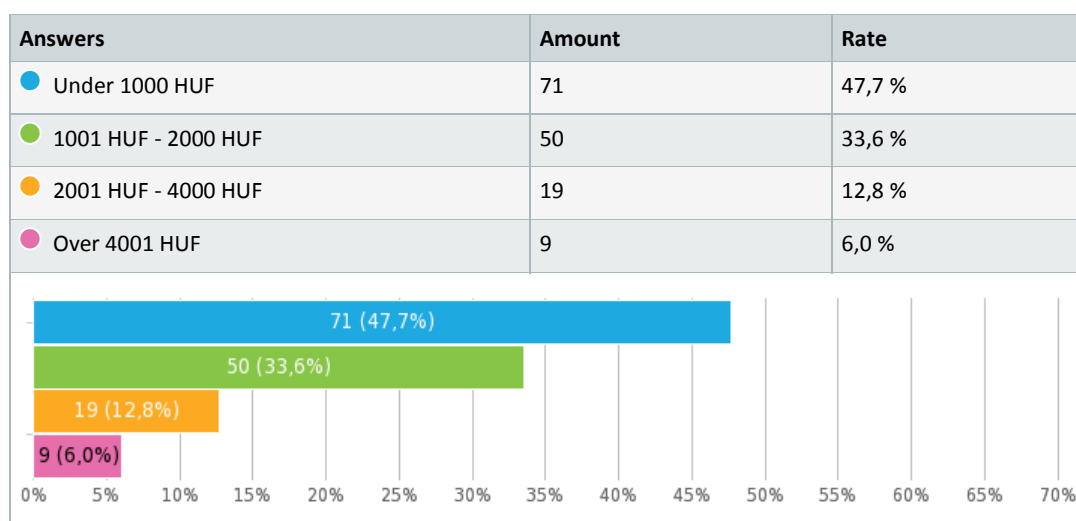
Chart 8: Evaluation chart to: Do you check out the composition of the beer before buying? (Source: Author's own research)



How much are you willing to spend on craft beer?

As shown in Chart 9 (Evaluation chart to: How much are you willing to spend on craft beer?) willingness to pay remains below 1000 HUF; based on the answers of 47.7 % of all the respondents. 33.6 % of the respondents are willing to pay as much as 2000 HUF and a mere 6 % tend to spend 4000 HUF on the beer. Not too many people pays a relatively high price for beer just because it is craft. They prefer to stay at the good old brand on a moderate price.

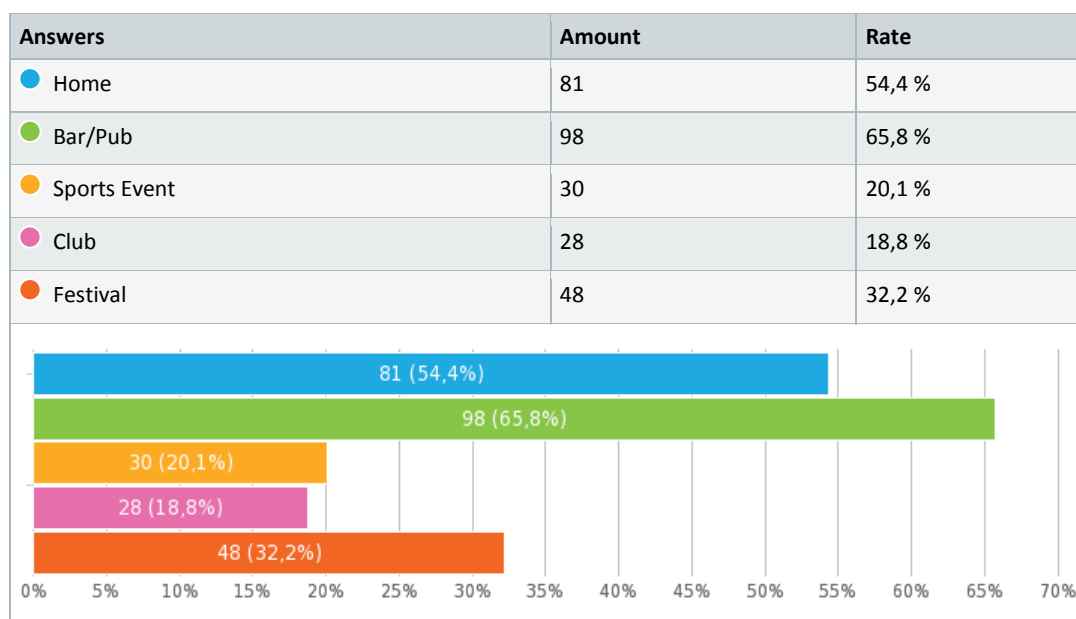
Chart 9: Evaluation chart to: How much are you willing to spend on craft beer? (Source: Author's own research)



Where do you prefer drinking beer?

The answerer had the opportunity to give more than one answer. As shown in Chart 10 (Evaluation chart to: Where do you prefer drinking beer?) most of the respondents (65.8 %) drink beer in bars and pubs. 54.4 % of the respondents drink beer at home, 32.2 %, on festivals, 20.1 % on sport events, the rest, 18.8 % prefers drinking beer in night clubs. The result didn't surprise me. Pubs and Bars are still the most popular places to go out for a drink.

Chart 10: Evaluation chart to: Where do you prefer drinking beer? (Source: Author's own research)



What kinds of craft beer do you know?

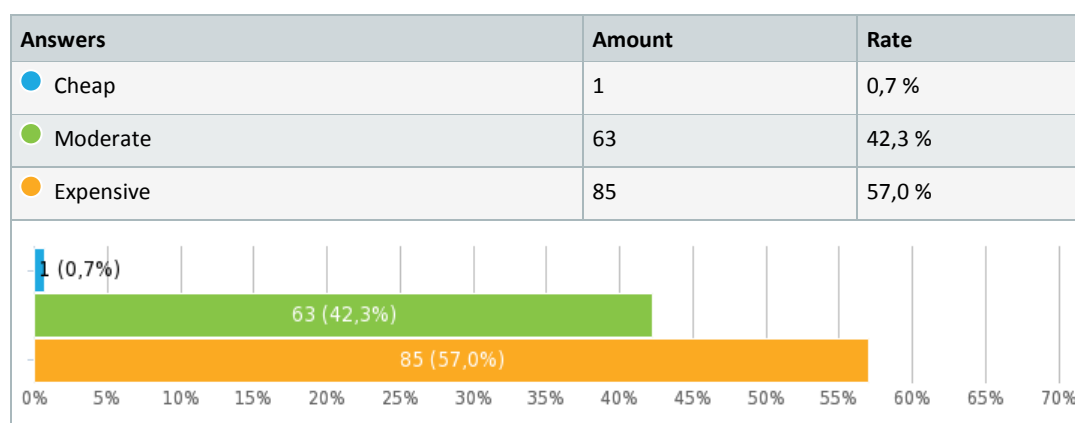
Most of the respondents, altogether 32 people mentioned Szent András Beer Breweries. 29 people do not know any kind of craft beer. The second on the list was Hedon and Fóti, both getting 21-21 votes. Monyo, Rizmajer, Csiki and Legenda produced publicity over 10. The above mentioned ones were followed by another 57 names. Without limitation, I would like to mention some more: Stari, Zirci, Horizont, Mad Scientist, Hop Top, Szarvasi, Rothbeer, Brew Dog, Big Foot, Balkezes, Share,

Kapucinus, Gólem, First Craft Beer, Etyeki, Reketye, Kecskeméti Sörmesterek and HaraPunk beer breweries. All in all, a conclusion can be drawn that 81% of the respondents feel at home in the world of craft beer types as opposed to the 19% who could not name any of them.

What do you think about the price range of the craft beer?

As shown in Chart 11 (Evaluation chart to: What do you think about the price range of the craft beer?) according to 57 % of the respondents the craft beer is still expensive. Respondents who find it cheap were not as many as 1%. 42.3 % think craft beer has an average price. Craft beer is expensive because of the high price of raw materials and operational costs of a small brewery.

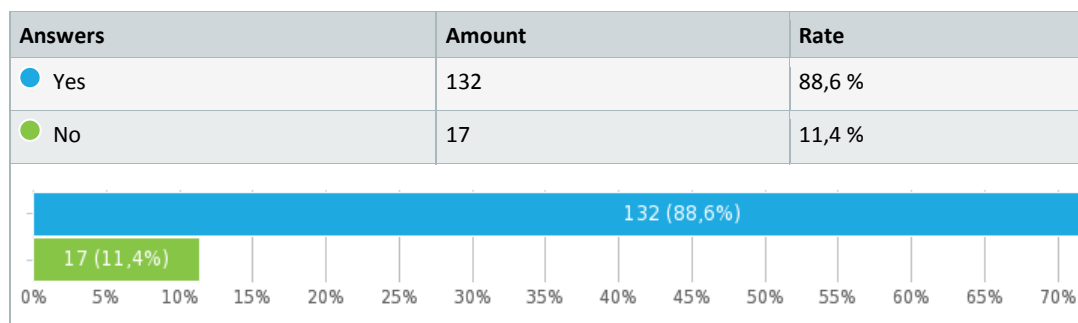
Chart 11: Evaluation chart to: What do you think about the price range of the craft beer? (Source: Author's own research)



As shown in Chart 12 (Evaluation chart to: Would you like to visit a craft beer brewery?) 88.6 % replied to this question that they would be pleased to visit a craft beer brewing manufactory. However, 11.4 % are not interested in the process of craft beer brewing. I think this question is shows to us that the interest is still growing in a direction of the craft beer.

Chart 12: Evaluation chart to: Would you like to visit a craft beer brewery?

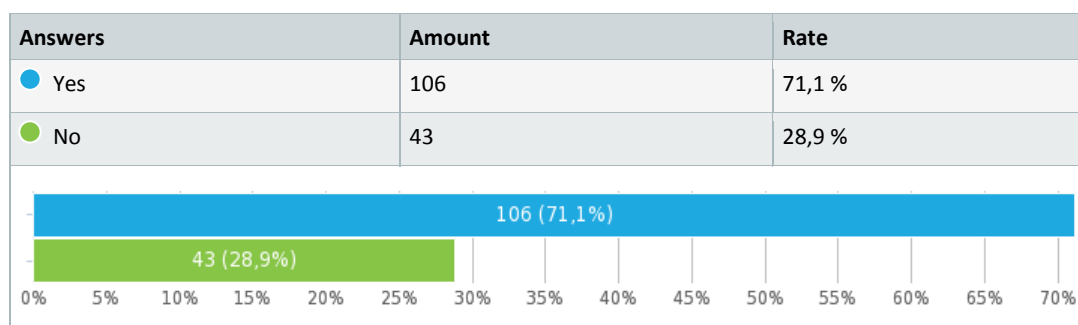
(Source: Author's own research)



Do you like visiting festivals that popularize craft beer?

As shown in Chart 13 (Evaluation chart to: Do you like visiting festivals that popularize craft beer?) 71.17 % of the respondents are pleased to attend an event where craft beers are popularized, 28.9 % of them do not attend such festivals. I think this question is shows to us that the interest is still growing for the beer festivals.

Chart 13: Evaluation chart to: Do you like visiting festivals that popularize craft beer? (Source: Author's own research)

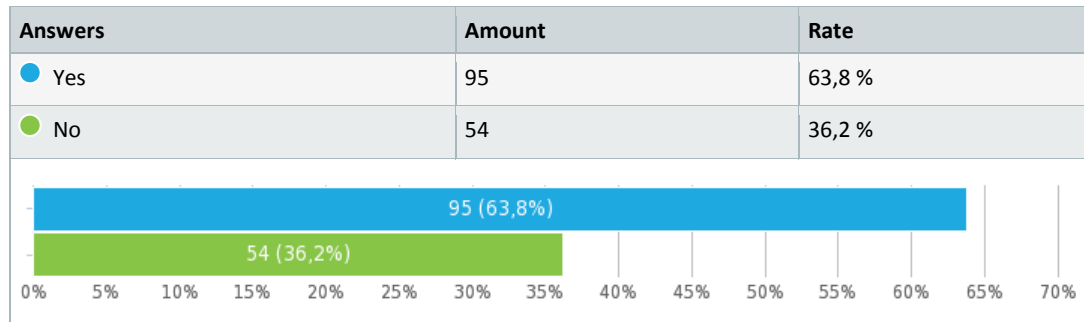


Do you prefer going to a restaurant, bar or pub if you know there you can buy craft beer?

As shown in Chart 14 (Evaluation chart to: Do you prefer going to a restaurant, bar or pub if you know there you can buy craft beer?) 63.8 % think that they prefer to go to places selling craft beer. 36.2 of the respondents are not influenced by that when making their decisions. I think this question is shows to us that the

interest is still growing for the restaurants keep one or more craft beer on tap.

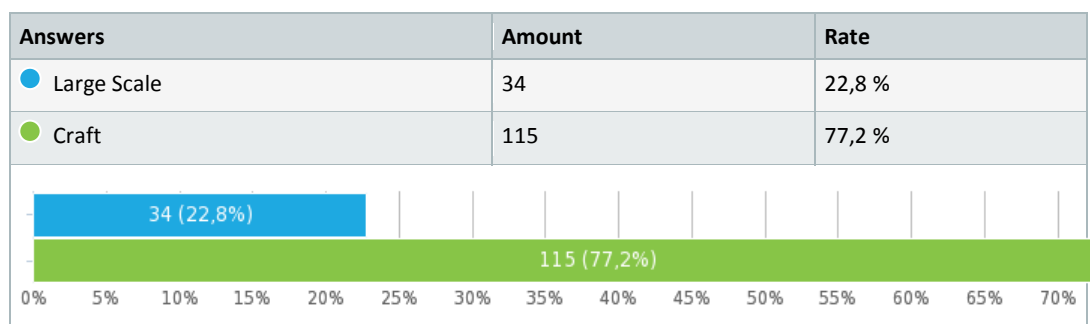
Chart 14: Evaluation chart to: Do you prefer going to a restaurant, bar or pub if you know there you can buy craft beer? (Source: Author's own research)



If there are both craft beer and large scale beer in a given place, which one do you prefer buying?

As shown Chart 15 (Evaluation chart to: If there are both craft beer and large scale beer in a given place, which one do you prefer buying?) large scale beer is chosen by 22.8 % of the respondent, significantly falling behind the 77.2 % who choose craft beer. I never thought about that. Craft beer is living Its revolution.

Chart 15: Evaluation chart to: If there are both craft beer and large scale beer in a given place, which one do you prefer buying? (Source: Author's own research)

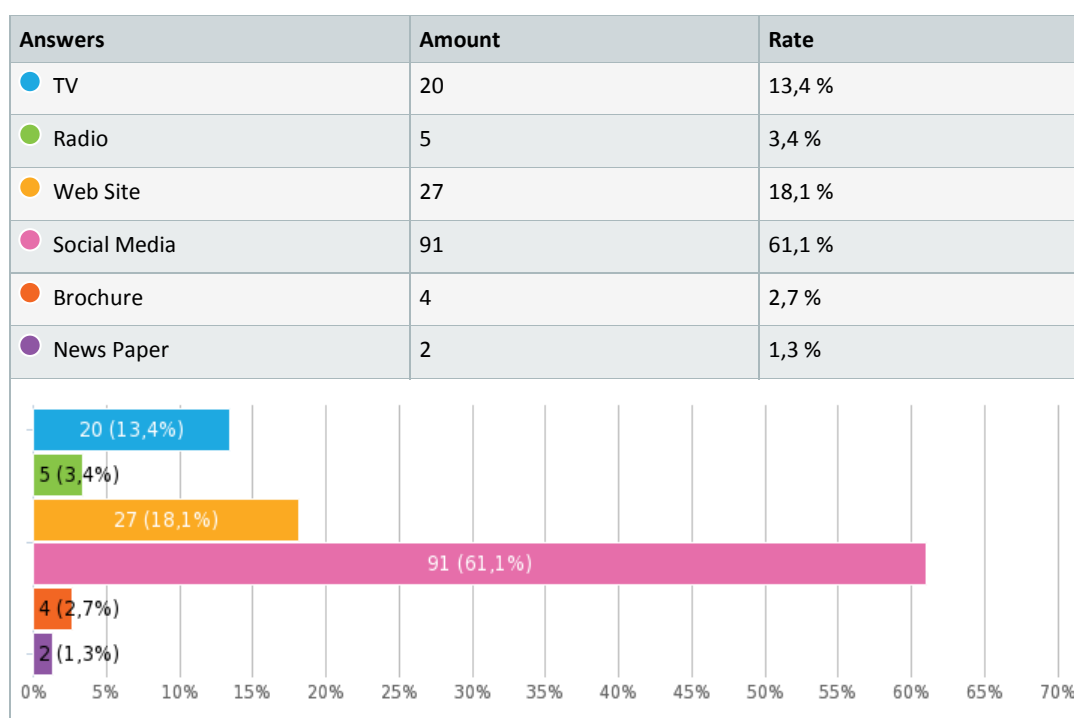


In your opinion, what kind of advertising method suits craft beer the most?

As it was seen earlier, the majority of the respondents were between 18 - 30 years old. As a result of this, most of them feel

that the best advertising method for the craft beer would be the social media. As shown Chart 16 (Evaluation chart to: In your opinion, what kind of advertising method suits craft beer the most?) 61% selected this option. 18.1 % think the best solution for advertising the craft beer would be the home page of the product. Newspaper advertisement came in last, with only 1.3 % of the respondents selecting this option.

Chart 16: Evaluation chart to: In your opinion, what kind of advertising method suits craft beer the most? (Source: Author's own research)



7.5. Rebuttal, supporting points:

My first hypothesis that craft beer is consumed mostly by young people rather than large scale beers; has been proven after evaluating the questionnaire. Among young people the popularity of craft beer is significantly higher than that of large scale beers. The ratio is 80 % to 20 % in favour of craft beer. It is very significant from the point of the future of craft beer. Young people might become potential customers of the craft beers later.

My second hypothesis was that the majority of the respondents are influenced mostly by the price and not the quality on purchase. In this case

I was examining the following significant attributes: price, brand name, taste, quality, colour, producer, type and packaging. Taste and quality of the beer have proved to be the most important attributes. They are more important for the respondents than the price, brand name or packaging. However, approaching the question from a different aspect, I received the respond to another question that the majority of the consumers are willing to pay for the craft beer below 1000 HUF whilst 33.6% are willing to spend as much as 2000 HUF. To a certain extent, it proves the price sensitivity for the product, but indeed, it is not the most important aspect. According to these two questions respondents partly refuted my hypothesis partly not.

My third hypothesis was that craft beer consumption is rather typical on different festival occasions. This hypothesis of mine has also been refuted. The respondents mainly drink craft beers in pubs and bars. The festivals fall behind even the beer consumption at home. It indicates that craft beer may not only be a rarity suitable for occasional consumption but much more than that. Besides that large scale beer consumers wishing to buy special beers are prone to choose craft beer even when large scale beer is available for them.

My forth hypothesis was that craft beer types are less known by the customers (therefore discovering and determining the suitable advertising methods would be important). This hypothesis of mine has been refuted, too. I myself was surprised at how wide range of the craft beers is known by the respondents; that was 65 craft beer types altogether. It is a huge number! Even I was not familiar with all of them. True enough, there were 29 people who could not name any of the craft beer types; but that is only 19 % of the respondents. As for the most suitable advertising method social media has proven to be the best. The own home pages of the craft beers are also a very popular form of advertisement. My conclusion is that further popularization of the craft beer is can be best done through the social media; certainly, among the younger generation but those over 40 years old, too. I am confident to claim that because 30 the respondents

aged over 40 voted for the social media, which was the greatest number of responds in this age group to this question.

Summary

Getting to the end of my thesis, there were a lot of information arising which were new even for me; and also, a lot of questions were answered. The variegation of the beer and its history dating back to centuries ago let us conclude that further bright decades or rather centuries are in front of this beloved refreshing alcoholic drink. As for the craft or small scale beer, I can predict a similar future for it. It will never catch up with multinational breweries. In fact, the goal is not that indeed, but rather obtaining a nice slice of the market for itself. It is mainly possible with the help of the young generation. I don't claim, however, that older generation cannot be persuaded into buying craft beer. All I say is that in their case the situation is a bit more complicated. In our speeded up world people are trying to get rid of globalisation and fast moving life to a certain extent. There are those who are fighting against it and there are others who are simply trying to avoid that. With an attitude like this the justification for a bigger market share is rally greater. It is not only the fight of the younger generation and the persuasion of the older one which is important here, but also taking advantage of the social media mentioned before. It is a major factor in the marketing of the small scale or craft beer. They have to fill up a nearly subtle market niche, which is not easy in the present social situation. We clearly need to claim the fact that has almost been obvious: craft beer is expensive! We can say that it is the result of the profit oriented behaviour of the breweries but it is only partly true. The costs of the commodities make the special products expensive just as much as the profit margin. The yeasts, the good quality barley malt and hop pellets, as well as the refined water all contribute to the high selling price. The solution for that can be found on a rally fine line. If we want to represent the quality we cannot come down below a certain quality level of the commodities. However, if we want to get the bigger quantity at a lower price to the people the quality will decrease since one or two of the commodities might have been selected from the cheaper category. The golden middle way must be found that makes it possible that the quality is still higher than satisfactory, the commodities are good and we do not over position the price, either. It is possible to produce a perfect beer but for that the beer lover consumers' group must be found or even expanded the financial situation of which allows the higher price. In line with these ideas, (involving young people, persuading older ones, price, middle way, exploiting buying power)

we may as well extend the existing 2 % market share to even 6 or 7%. There are plenty of shops, restaurants bars and pubs specialized in that. Year by year, there are more and more festivals organised around this topic. The social media sheds the advertisements. There is no use fighting any more, and there is not much to do. The mechanism has picked up. The hard work must go on and for sure, it will bear fruit sooner or later. For me, besides the research and the creative work done, if I am allowed to put it this way, dealing with this topic was a great pleasure and even a greater honour.

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