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CRAFT BREWING - THE GRASSROOTS ACTIVITY OF MICRO-MANUFACTURERS AS A STIMULANT FOR MARKET DEVELOPMENT AND SELF-IMPROVEMENT IN THE BREWING INDUSTRY

Abstract

This article presents the aspects of the activity of home brewers from the area of beer production on a micro scale. The first part discusses the market conditions affecting the growing popularity of non-commercial beers and the essence of craft, contractor and restaurant breweries. The second part describes the innovations emerging in the industry, not only in terms of new technologies and recipes, but also in building home brewer communities and their education through forums and dedicated websites. It also presents the initiatives supporting domestic brewing, coordinated by the Polish Home Brewers Association (Polskie Stowarzyszenie Piwowarów Domowych) (e.g. competitions, festivals, sensory courses).

The multi-aspect analysis of the activities of home brewers revealed that the most important result of their self-education has been the "beer revolution", going on since 2011, which has paved the way and enabled the commercial emergence of new taste offers, different from the typical light lager beer.

Key words

Craft brewing, market development, self-education, microbrewery

Introduction

Since the beginning of the 21st century, so-called craft beers have grown in popularity in Poland, but their emergence was simultaneously associated with the development of the process of self-education. One of the reasons for leaving what the market had to offer was the dominance of mass manufacturers, and the second reason was the strong consolidation of such brewing giants as SAB Miller, Heineken and Carlsberg. Uniformization of production has been manifested by maximizing efficiency at the expense of what has the biggest impact on the price: quality and diversity. The reign of cost reduction and price pressure led, among other factors, to replacing barley malt with the cheaper corn malt, shortening the brewing time of beer, for example by using the HGB, High Gravity Brewing method, which resulted in a significant decrease in the quality and leveling and a lowering of the sensory values of the beers offered. The normalization of production and automation of the brewing process has led to the standardization of the offer on the market and the emergence of a situation in which a typical consumer could predict how a light beer or a dark beer would taste, regardless of the manufacturer. Predictability and market weariness have led to an unexpected increase in the popularity of home brewing, which has evolved over time into contract, craft and restaurant brewing.

From home brewing to craft brewing

The moment that Internet forums, where amateur beer brewers started exchanging experiences in the field of beer production at home, were established, i.e. the years 2000-2001 can be considered as the beginning of the intensive development of domestic brewing in Poland. Vibrant Internet communication platforms for home brewing enthusiasts such as Browar.biz and Browamator.pl emerged around that time [1, 2]. At present, there are many websites devoted to the issues of home brewing, and the Browar.biz website forum has more than 56 thousand registered users [1].

With the passage of time, and as a result of gaining more and more experience, enthusiasts of domestic brewing strive to share the effects of their amateur brewery work. This results in an increasing number of contract, restaurant and small craft breweries.

Andrzej Sadownik, a lecturer at the Warsaw University of Life Sciences, is a pioneer of the home brewing industry. He established his first brewery, O! Nanobrowar Domowy "Piwu" in 1994, and quickly gained a following [3]. At present, you can follow the progress of more than 380 domestic breweries [4]. Because of the high financial and organizational requirements, only a handful of experienced home brewers decided to establish a craft or a restaurant brewery. The vast majority chose to cooperate with small regional breweries on a contract basis.

An excellent example of the transformation of a brewing hobby into a profitable full-time job is Artezán. This was one of the smallest breweries in Poland. A single-time brew house yield amounted to approximately 5 hl, and around 30 hl of beer was produced per month. All the necessary equipment was designed and assembled by the founders, using different devices that originally had different uses. Numerous successes and recognition in competitions and brewing events have resulted in a significant increase in the demand for the Artezán Brewery products. In order to increase supply, in 2014 Artezán's owners decided to sell the brewery to Natolin, and they made a number of investments to create a new brewery in Błonie, meeting the expectations of both brewers and consumers. The whole installation was made on special order by Pacovské Strojírny, a Czech company specializing in the production of brewery installations. The installation included a 30 hl brew house, three 60-hectoliter and two 30-hectoliter fermentation and maturation tanks, and an intermediary tank for bottling purposes [5, 6].

Contract and restaurant brewing

Contract brewing is an initiative of mutual benefit between a small brewery that does not fully exploit its processing capacity, and brewing enthusiasts who want to share the taste of beer created during brewing at home with a wider group of consumers. A contract brewery is an establishment run by experienced brewers who have entered into an agreement (contract) with one or more small regional breweries to periodically rent the facilities and areas owned by the brewery to produce beer according to their own recipes. With such an agreement, the sales and marketing plan lies with the authors of the recipes and the profits from the sales are divided according to the terms of the agreement. Thanks to the idea of contract brewing, there has been a resumption, modernization and reorganization of many small regional breweries. The real renaissance of contract breweries occurred in the last few years, when the contracting breweries Pinta, AleBrowar, Szałpiw, Doctor Brew, Pracownia Piwa, Birbant and many others appeared on the market (Fig. 1). Thanks to this, consumers can now taste the flavors of beer that were still unavailable only several years ago, made in such brewing styles as India Pale Ale (IPA), American Pale Ale (APA), Imperial Stout, Imperial/Double IPA, Saison, Abbey Tripel, Barley Wine, Cascadian Dark Ale (Black IPA), Sweet Stout (Milk Stout or Oatmeal Stout), Rauchbock and many more [7].

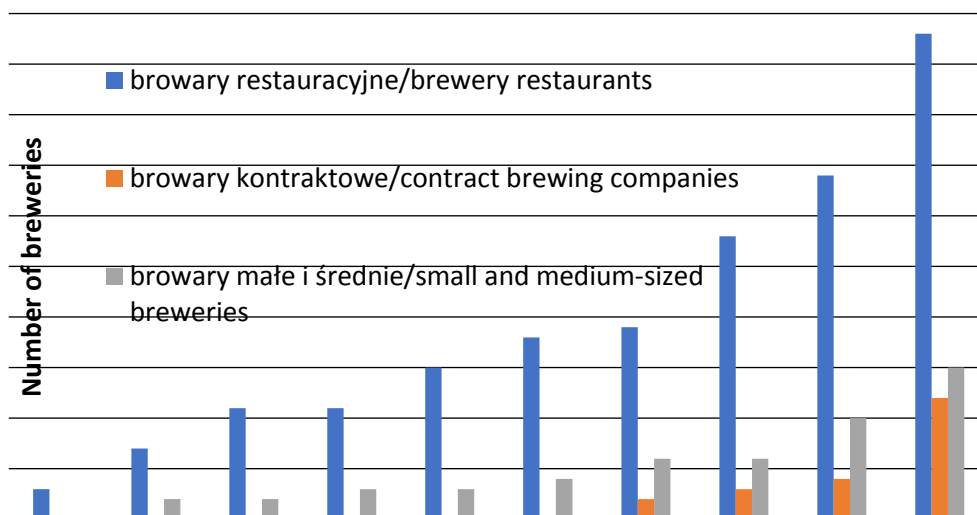


Fig. 1. The number of new and reactivated breweries in Poland created in the years 2004-2013

Source: Author's findings based on www.beerpubs.pl

The last group of breweries, the number of which has increased significantly in recent years, is breweries operating at restaurants for their patrons: restaurant breweries. The characteristic feature of this type of place is the aesthetically pleasing, atmospheric finish of the restaurant premises and the brew house itself, which, along with the brewing process, can be admired by visiting beer consumers. As a standard, the assortment of restaurant breweries is limited to light, dark and wheat beers. However, many of the new restaurant breweries are run by brewers who have brewed tens to hundreds of brews in the privacy of their homes. More and more often you will find Ale-type beers (top fermentation) with the addition of American hops or other interesting

variations, such as Black Kiss, which is a Foreign Extra Stout beer, maturing in whiskey barrels (Jack Daniel's) in the Widawa restaurant brewery in Chrzęstwa Mała [8].

The response of regional breweries and big beer companies to the activities of home brewers, contract, craft and restaurant breweries has been the introduction of beers brewed according to new recipes into their offer. The Jakubiak Regional Breweries (Browary Regionalne Jakubiak), which include the Bojanowo, Ciechanów and Lwówek Śląski Breweries, have Belgian Ale, Porter, AIPA, March, Stout, IPA and styles of beer in their offer, in addition to lager and flavored beers [9]. In turn, the Żywiec Group has re-introduced Żywiec Marcowe, Żywiec Bock, Żywiec Porter, Żywiec Bock, Żywiec Porter, as well as new proposals such as Żywiec Białe (Witbier) and Żywiec APA [10]. The Okocim Brewery has offered consumers a range of seasonal beers - Dożynkowe (Harvest), Świętojańskie (St. John's Night), Święteczne (Christmas) and Wielkanocne (Easter) [11].

Self-education and innovations

The American psychologist David Kolb has stated that behavior consistency, the lack of modification of habits or views during and after an experience, is undoubtedly a sign of a lack of learning, not its effect. According to Kolb, learning is a process of continual modification of prior experience through the experience taking place after it. New knowledge and views do not appear as characters on the "pure white sheet of the mind" of the learner, but interact with the knowledge and beliefs that they already possess. According to the author, the educational process is primarily about interacting with the environment, and knowledge is gained through the transformation of experience. One can learn most effectively through the opportunity to experience different situations and to share experiences with other participants of the learning process, because successive experiences enrich knowledge and cause new information to be assimilated faster than, for example, when knowledge is acquired through passive listening [12].

A good example of the effectiveness of the learning through the experience model is home brewing. Basic equipment and installations, such as a pot and a gas or electric cooker and common brewing materials (malt, yeast, hops) have resulted in many people becoming interested in brewing their first brew themselves. The exchange of experience of a large number of home brewers (through online forums, festivals and brewing workshops) results in continuous improvement of brewing equipment and brewing recipes at home. In some cases, the amateur brewers' hobby of home brewing and the constant acquisition of brewing expertise have evolved into a dream full-time job in their own craft or restaurant brewery.

The main reason why consumers choose to brew beer at home is its distinctive flavor. The corporations mainly offer lager beer: i.e. bottom-fermented beer, the taste of which is almost identical, and the most important difference between these beers is their price, the label and the shape of the packaging (cans/bottles). The innovations used in home, craft and contracting brewing are focused on the use of atypical raw materials, both as additives and flavoring, but also as new sources of malt [13]. The opposition of craft, contract, restaurant, and home breweries against unification and mass production of beers that do not differ in taste, that has been going on for several years, has been called a "beer revolution" [14]. Thanks to this opposition to the beer standard, the phenomenon of dividing beer store shelves into two categories: corporate beer and regional/craft/contract beer is becoming more and more common. The first revolutionary beer that appeared on the Polish market was a beer called "Atak Chmielu" from the Pinta contract brewery. The beer is brewed in the American India Pale Ale style, which is characterized by an intense hop aroma (citrus, floral, resin, pine and fruit elements) [15]. The number of followers of the opposition is growing, which stimulates brewers to look for different beer tastes that may interest consumers. Taste experiments are conducted with the use of atypical yeasts (e.g. baker's yeast, wild yeast), bacteria, hopping during mashing, cold hopping (additional portions of hops added during silent fermentation), as well as wine or whiskey barrels as a substitute for the maturing tank.

This entails changes in the brewing process and inspires the creation of new recipes and technical and technological solutions [16]. Growing consumer awareness, along with increased expectations regarding the quality and safety of the beer consumed is setting new trends in brewing, such as gluten-free beer for people with celiac disease and gluten intolerance, low-alcohol beer, flavored beer and monastic beer. Continuous experimentation of amateur brewers around the world with various types of equipment and technology results in new, innovative beer manufacturing technologies that can be implemented at home and beyond. Good examples include the Recirculating Infusion Mash Systems (RIMS) and the Heat Exchange Recirculating Mash Systems (HERMS) (Fig. 1 and 2) [12].

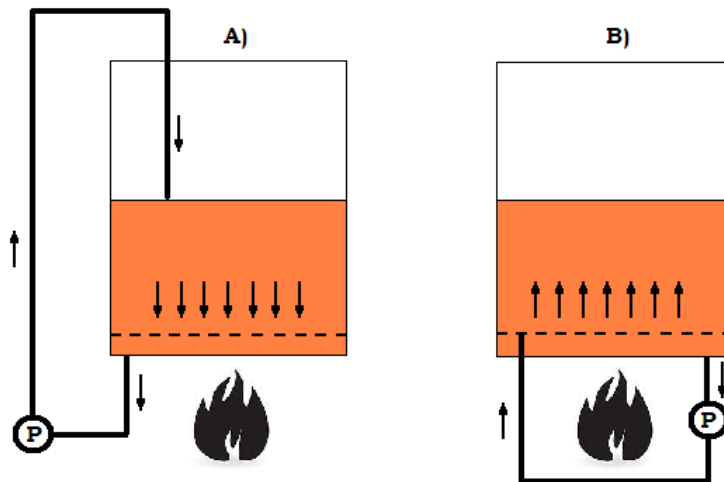


Fig. 1. The simplified wort recirculation scheme according to the RIMS model, where A - recirculation from top to false bottom, B - recirculation from bottom to false bottom, P - pump
 Source: Author

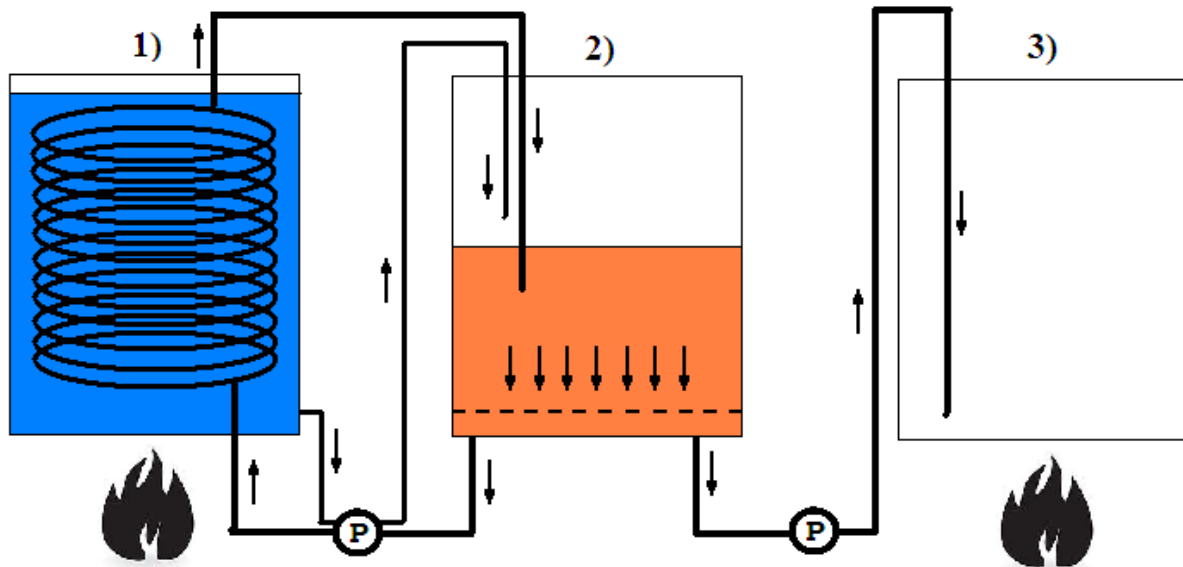


Fig. 2. The simplified wort recirculation scheme according to the HERMS model, where 1) - heat exchanger, 2) - mash tank, 3) - brewing boiler, P - pump
 Source: Author

In both cases, closed-loop pumps are used during wort mashing, allowing the wort to circulate directly in the mash tank (RIMS) or the application of an additional heat exchanger (HERMS). The advantages of these systems include the production of a clearer wort, greater control of the mashing temperatures, and the reproducibility of the results and a consistent quality of the beer [17]. Innovative designs, equipped with computer control of the mashing and brewing process are being created based on the above mashing systems. The result of learning through home brewing experience can be the single-chamber, computer-controlled mashing and brewing boiler named Braumeister, manufactured by the Spiedel Company. It is protected by a German patent (Patent DE 101 50 395 B4), equipped with a heating and filtration system, a forced circulation pump, a precision thermometer and a programmer allowing to schedule all mashing and recording of individual recipes without programming the boiler before each subsequent brew.

Home brewers rely on the solutions offered by professional companies manufacturing home brewing equipment and create their own solutions on this basis, called "clones" in jargon. Each of these designs differs

from one another because it is adapted to the financial constraints, equipment and spatial conditions of home brewers. They exchange their results and experiences with the work on self-made mash-brewing boilers on blogs and online forums, and also present their activity through YouTube.

Activities supporting home brewing

One reaction to the high interest in home brewing is the competitions, where home brewers have the opportunity to compare their beers in different categories. The oldest and most prestigious competition in Poland was the Home Brew Competition (Konkurs Piw Domowych), which was held from 2003 to 2014 during the Birolia Festival in Żywiec (supported by the Żywiec Group). In 2015, the 13th edition of this event will take place in Cieszyn. In 2006, the Home Brew Competition was held in Wrocław for the first time, within Wrocław Brewing Workshops. Similar competitions take place in Pomerania, Grodzisk Wielkopolski, Warsaw, Poznań, Częstochowa and many other places.

The Polish Home Brewers Association (Polskie Stowarzyszenie Piwowarów Domowych, PSPD), which was founded on January 30, 2010 in Cieszyn by 24 amateur beer brewers, is supporting Polish home brewers. The formal entry to the National Court Register took place on August 3, 2010 [19]. The role of the first president was taken up by the initiator of the idea of the home brewers association, Andrzej Sadownik, and since 2013 Krzysztof Lechowski has been his successor. The association is based in Bracki Browar Zamkowy in Cieszyn. PSPD's mission is "to create a friendly atmosphere around the hobby of brewing beer at home, promoting knowledge and respect for our favorite beverage, and a positive impact on industrial brewing and the entire beer scene in Poland." This organizes sensory and coaching courses, taking care of the image of the Polish brewing scene in the world, as well as reconstructing Polish and Old Polish recipes and brewing styles (e.g. the Grodziskie Redivivus initiative which restores the original Polish Gratzler beer to life). The association also publishes the quarterly magazine "Piwowar", which it includes industry events, commentaries, and tips for home brewers [20].

Conclusion

The size of the traditional and gluten-free beer market in Europe [21] and the changing tastes of customers create a large niche for individual beer production activities. It is also noteworthy that small regional plants fit in with the increasing need for individualization and recognition of the product. Innovative solutions and self-education in brewing provide a good example of the efficiency of grassroots activities and the needs resulting from the expectations of end-users. The "Beer Revolution" has changed the culture of beer consumption, offered a variety of flavors, and forced large breweries to analyze the needs and expectations of beer consumers who are becoming more and more aware.

Bibliography

- [1] <http://browar.biz/forum/>
- [2] <http://www.browamator.pl/>
- [3] http://www.bractwopiwne.pl/artykul/9456_piwo-z-czajnika.html
- [4] <http://www.piwo.org/katalog/>
- [5] <http://artezan.pl/>
- [6] <http://polskieminibrowary.pl/2014/10/17/nowy-wiekszy-lepszy-browar-artezan/>
- [7] <http://www.ratebeer.com/beer/country/poland/163/>
- [8] <http://www.beerpubs.pl/br17,Browar-Widawa>
- [9] <http://browary-jakubiak.pl/nasze-marki.html>
- [10] <http://www.zywiec.com.pl/warianty>
- [11] <http://www.piwasezonowe.pl/>
- [12] Kolb D. A., *Experiential learning*, New Jersey, (1984) Prentice Hall.
- [13] Harasym J., Pieciun T., Nietypowe słydy piwowskie – przegląd, *Nauki Inżynierskie i Technologie*. 92 (2010) 77-91.
- [14] <http://finanse.wp.pl/kat,104128,title,Browar-metoda-na-Artezana,wid,15344895,wiadomosc.html?ticaid=1157bc>
- [15] <http://www.browarpinta.pl/oferta/pinta-atak-chmielu-15-1,1.html>
- [16] Podeszwa T., Wykorzystanie pseudozbóż do wytwarzania piwa bezglutenowego, *Nauki Inżynierskie i Technologie*. 3, 10 (2013) 92-102.

[17] [http://www.wiki.piwo.org/Cyrkulacyjne_systemy_zacierania - RIMS i HERMS](http://www.wiki.piwo.org/Cyrkulacyjne_systemy_zacierania_-_RIMS_i_HERMS)

[18] <http://www.speidels-braumeister.de/>

[19] Sadownik A., Wreszcie legalni... do dzieła!. „Piwowar” Zima, Polskie Stowarzyszenie Piwowarów Domowych. 1 (2010) 1.

[20] <http://www.pspd.org.pl/>

[21] Podeszwa T., Harasym J., Perspektywy rynku piwa bezglutenowego w Europie, Przemysł Fermentacyjny i Owocowo-Warzywny, Stowarzyszenie Naukowo-Techniczne Inżynierów i Techników Przemysłu Spożywczego, Wydaw. SIGMA-NOT. 5-6 (2013) 14-18