

Lund University  
Department of Human Geography  
and Human Ecology Division



**LUND**  
UNIVERSITY



---

# Modus Hoperandi:

---

A Critical Agrarian Study of Hop Production in Sweden and Exploration of  
Localized Hop Production in the Scandinavian Context



Author: Enrique Antonio Mejia  
Master's Thesis (2 years) in Human Ecology: Culture, Power, Sustainability  
30 credits  
Spring 2019  
Supervisor: Alf Hornborg

## ABSTRACT

Using a critical agrarian studies approach, this study focuses on the history and current context of hop production in Sweden and adjoining parts of Scandinavia as a case study illustrating how land-use changes and the paradigm shift towards globalized agri-food systems has tended to marginalize traditional crop production as well as how completely new forms of hop production are able to practically confront the capitalist logic of globalized agriculture. This study explores class relationships, land-use changes, and the paradigm shift towards globalized agri-food systems to explain Sweden's reliance upon foreign production systems to satisfy its growing hop consumption, despite centuries of domestic hop production. Economic localization – the production, distribution, and consumption of a commodity within a community – is explored as an approach that counters the capitalist logic of globalized hop trade. This is done through fieldwork conducted at Byhumle, a radical urban hop farm in Copenhagen, Denmark. The result of this research was a critical agrarian history of hop production in Sweden, which demonstrated that its decline was facilitated by land enclosures, the depopulation of the peasantry, and the corporatization of global hop production, despite centuries of royal mandates. Furthermore, Byhumle was shown to be a considerable example of economic localization as praxis.

Keywords: Critical Agrarian Studies, Sweden, Hops, *Humulus lupulus*, Economic Localization, Agricultural History

## ACKNOWLEDGMENTS

First and foremost, I would like to thank my parents, Kathy and Pedro, for their unconditional love and support, having the strength to help their child move across the world to pursue his dreams, and nurturing my love of writing, science, and travel. This extends to the rest of my family and friends, whom I hold so dear and miss incredibly much. If I typed all your names, I would double my word count.

My partner, Josefin, deserves particular praise for her love and support despite the emotional rollercoaster that is thesis writing. I am incredibly fortunate to have you as a *sambo*, thesis writing partner, and best friend.

I would like to thank Alf Hornborg for his thorough editing and critical feedback. Your writing is an inspiration to me, and I am happy to learn from you.

The CPS faculty, I hope with this accomplishment, I have earned my keep. Thank you for admitting me into the program, despite not making the first cut.

To the members of Byhumle, the Swedish hop farmers, and others that were crucial to the writing of this thesis, thank you.

## TABLE OF CONTENTS

ABSTRACT .....	i
ACKNOWLEDGMENTS .....	ii
LIST OF FIGURES .....	v
LIST OF APPENDICES .....	v
I.....	1
INTRODUCTION .....	1
Crop Description.....	1
Historical Context.....	1
Current Situation.....	2
RESEARCH AIM AND QUESTIONS .....	3
II .....	4
RESEARCH APPROACH .....	4
Critical Agrarian Studies .....	5
THEORETICAL FRAMEWORK.....	6
Primitive Accumulation.....	6
World-systems Analysis and Globalized Agri-food Systems .....	7
Food Regime Theory .....	8
Economic Localization .....	10
METHODS AND METHODOLOGIES .....	11
Critical Historical Analysis.....	12
Case Study Analysis .....	18
Limitations and Ethical Considerations .....	20
III.....	21
EARLY HOP CULTIVATION IN EUROPE.....	21
PRESENCE OF HOPS IN SWEDEN BEFORE THE SEVENTEETH CENTURY .....	22
The Country Law of Christopher of Bavaria .....	23
Hop Production During and After Gustav Vasa .....	23
WAR, ENCLOSURES, AND HOPS.....	24
Enclosures by the Nobility.....	25
Specialization.....	25
THE AGRICULTURAL REVOLUTION AND NEW ENCLOSURES .....	27
Enclosure Reforms.....	28
Depopulation of the Peasantry .....	29
Hop Production Endures.....	30
PARADIGM SHIFT TOWARDS GLOBALIZED AGRI-FOOD SYSTEMS.....	31
Hop Production within a Globalized Agri-food System .....	32
CONTEMPORARY HOP PRODUCTION IN SWEDEN .....	35
IV.....	39
BYHUMLE .....	39
Hop Production in a Scandinavian Context .....	40
The Farm.....	41
Economic Localization as Praxis .....	43



V .....	47
CONCLUSION.....	47
Suggestions for Further Research .....	48
Final Words .....	49
REFERENCES .....	51



## LIST OF FIGURES

Figure 1: Limitations of using the translation tool of my internet browser .....	14
Figure 2: Municipality coat of arms .....	23
Figure 3: Craft beer showcasing hops from periphery countries .....	35
Figure 4: Visualized data from The Observatory for Economic Complexity: Sweden .....	36
Figure 5: Breweries showcasing the use of Swedish hops.....	38
Figure 6: Visualized data from The Observatory for Economic Complexity: Germany .....	38
Figure 7: Layout of Byhumle .....	42
Figure 8: Garage Bar by Byhumle .....	43
Figure 9: Naturalized Danish hops.....	45
Figure 10: Diagram representing the circular flow of capital. ....	47

## LIST OF APPENDICES

APPENDIX A .....	57
APPENDIX B.....	58



## INTRODUCTION

“Gomorrön! Nu har jag vaknat. Nu går jag ner igen å tack för sällskapet, sa hummelringlan, jag kommer igen!”

“Good morning! Now I have awakened. Now I will go down again and thanks for the company, said the hop bine, I will come again!” (Author’s Translation).

- Folk saying about seasonal cycle of hop plants from Ovanby, Uppland circa 1800s. (Cederroth 2014, 294)

### Crop Description

For the purpose of this study it is important to discern what is meant when discussing *hops*. The term *hops* is the colloquial name for the perennial plant *Humulus lupulus* as a whole and for the cone-like flowers that are used in beer brewing.<sup>1</sup> These cones are rich in alpha acids and lupulin, compounds that are vital to the brewing process for their bittering and antiseptic properties (Eyck and Gehring 2015, 16-17). The hop plant is a voracious crop that transforms from a stumpy rhizome deactivated during the bitter winter months to a towering canopy of bines, leaves, and prized cones. Hop plants can grow as much as thirty centimeters a day, and overall up to thirteen meters tall (ibid, 31). It is important to note that hops are dioecious – exhibiting different physical traits between the sexes – and the unpollinated flowers from the female plant are what beer brewers utilize (ibid, 32).

Hops have been cultivated for time immemorial but are suggested to have originated in China (Murakami et al. 2006). There are now over two hundred varieties, with more being discovered or bred as time goes on. For example, the work of Else-Marie Karlsson Strese and Clas Tollin (2015) on Swedish feral hop varieties was of great inspiration to this research. These feral hops are also referred to as naturalized hops (Eyck and Gehring 2015, 38-40).

### Historical Context

While archeological evidence shows that hops were in use by the Vikings, the earliest written evidence of the use of hops in Sweden comes from the 12<sup>th</sup> century (Heimdahl 1999; Lagerås 2003; Sloth et al. 2012; Tollin and Karlsson Strese 2007). Sweden is a country with

---

<sup>1</sup> From this point forward, all things concerning the plant *Humulus lupulus* will be called by the colloquial name hops.

short growing seasons and is therefore home to a wide variety of preservation techniques; such as the pickling of vegetables and fish. Because of the antiseptic qualities that hops possess, their use in beer brewing ensures a lasting supply. In the centuries before the existence of technological preservation techniques, hops were essential to preserving the food source because in those times beer was much more nutritious and not solely enjoyed for its inebriating effects (Eyck and Gehring 2015, 20-21). Hops thus became a staple crop and was legitimized as such by a royal decree requiring all farmers to cultivate them. This mandate lasted between the years 1441 and 1860 (Karlsson Strese et al. 2014, 232).

Towards the end of the nineteenth century, Sweden experienced a dramatic drop in hop production, that has yet to be revitalized. There was a brief period between the two World Wars, when the import of hops became expensive and limited, that domestic production amplified in Sweden. During this period, a large production area was in the town of Näsrum in the southern state of Scania.

### **Current Situation**

In the time after the World Wars, hop production has become more concentrated in the world-system to the benefit of a few multinational trading firms. Currently, Germany and the United States each account for a third of the global production of hops; with China drastically expanding its production in the last few years (Kennedy 2016; Kopp 2012, 86; Pavlovic and Pavlovic 2012). Germany produces sixty percent of the hops grown in the European Union, while Sweden is no longer considered a hop growing region (ibid). In 2017, Sweden imported 6.4 million Euros worth of hops and exported seventy-eight thousand Euros worth.<sup>2</sup>

While Sweden's hop production has reduced dramatically, its consumption has grown around twenty percent yearly since 1997 (Tridge 2018). This growth is in part due to the exponential rise of Swedish microbreweries and the advent of hop-concentrated beer styles, such as the India Pale Ale (Simpson 2014). This places Sweden in a precarious position; if the global hop industry experiences a crash, there will be a limited supply that will come at a high price. For example, German hop production dropped twenty-one percent in 2016, due to drought (Kennedy 2016). Which begs the question: why does Sweden not have a thriving hop

---

<sup>2</sup> OEC (Information on footnote citation found in METHODS AND METHODOLOGIES section)



industry despite its centuries long history of cultivation? This question serves as the inspiration and foundation from which this research is built.

## RESEARCH AIM AND QUESTIONS

Embedded in the cross-scale relationships dealing with the global production of hops lies a problem this research aims to address. Sweden is a country that champions itself as a pioneer within the sustainability movement yet relies heavily on agricultural imports to function (Martin and Brandão, 2017, 17). It goes without saying that there are indeed agricultural goods that cannot be grown in Sweden without immense inputs due to climate; however, the presence of naturalized hops in the Swedish landscape and centuries of previous cultivation suggest that a production system can thrive (Karlsson Strese and Tollin 2015). The following research questions and sub-questions will frame the study:

RQ1: Despite a rich history of hop production and increasing national demand, why has hop production in Sweden declined to the levels we are seeing in the twenty-first century?

RQ1.1 How have changes in agricultural land-use facilitated the decline of hop production in Sweden?

RQ1.2 How has the paradigm shift towards globalized agri-food systems reinforced the decline of hop production in Sweden?

RQ2: How does the urban hop farm Byhumle exemplify a return to small-scale, local hop production in a Scandinavian context?

This research will be carried out in two parts. The first is a historical overview of hop production in Sweden and its decline at the end of the nineteenth century. The purpose of this is to contextualize the present situation of Sweden's dependence on foreign production systems for its increasing hop consumption and how this is reinforced by a paradigm shift towards global agri-food systems. The second portion is a case study of the urban hop farm Byhumle in Copenhagen, Denmark as a means of showcasing economic localization – the production, distribution, and consumption of a commodity within a community – as praxis.

The relevance of this research is two-fold. First, this research explores the historical, political, and social aspects of a niche and overlooked crop; thus, contributing to the greater body of scientific knowledge on agriculture in this part of the world. Secondly, the promotion

of small-scale, urban farming operations has been argued to improve cultural, economic, and ecological sustainability (Frankova and Johannisova 2012; Frankova et al. 2017; Martin and Brandão, 2017).

However, it is important at this juncture to bring to light a limitation that I encountered throughout the writing of this study. I have found my egregious knowledge of Scandinavian languages a difficult hurdle to overcome. As I have dealt with material written in modern and older forms of Danish and Swedish, I have been at a disadvantage. Hops have been a ubiquitous crop in Sweden from the fourteenth century onwards, and this is reflected in the ample material available in Swedish. I apologize if portions of this study seem redundant to those who are familiar with this topic and the Swedish language. What I offer is a channel for those who are not familiar with these prerequisites to learn about the rich history of hop production in this part of the world. Furthermore, while extensive historical footwork has been carried out by the likes of Else-Marie Karlsson Strese and Clas Tollin (2015) – as well as Pia Nilsson (2011), this study contributes to the topic by providing a critical analysis of socio-ecological changes within Swedish agriculture that affected the cultivation of hops; namely land-use changes, depopulation of the peasantry, specialization of crop production, and integration into global agri-food systems. To my knowledge, no study has examined Swedish hop production in such a way. Finally, the case study of Byhumle also enriches this topic by demonstrating how the concept of economic localization is practical beyond academia.

## II

### RESEARCH APPROACH

As has been discussed in the Chapter I, this study has been divided into two parts; a historical overview of hop production in Sweden and a case study of Byhumle as praxis of economic localization. To accommodate the investigation of these two parts, critical agrarian studies has been chosen as the approach to inform theory and method selection. Political ecology serves as an influence on this approach in arguing that environmental issues – including agricultural issues – are embedded in political processes.

## Critical Agrarian Studies

The focus of this thesis is the history and current context of hop production in Sweden and adjoining parts of Scandinavia as a case study illustrating how land-use changes and the paradigm shift towards globalized agri-food systems has tended to marginalize traditional crop production as well as how completely new forms of hop production are able to practically confront the capitalist logic of globalized agriculture. Incorporated in this focus is a critical perspective on the agrarian history of Sweden; emphasized by the relationship between the peasantry, enclosures, and hop production. Because critical agrarian studies recognizes “the importance of analyzing agrarian social classes and the political-economic forces that call them into existence or make them disappear”, it also provides the tools necessary to analyze the cultural practices – and agricultural practices – of these classes (Edelman and Wolford 2017, 963; 966). The historical-political aspects of critical agrarian studies provide a complementary framework to political ecology, as “political-ecological configurations need to be understood as constructed in and through past processes, transformations, and dynamics” (Mathevet et al. 2015, 2). The emphasis this study places on the historical is evidenced by its bulk being comprised of the history of Swedish agricultural transformations and how this has affected hop production in the present time. This is because critical analysis of situated histories can unravel complex social relations by providing evidence of past transformations, landscape developments, and knowledge production (Davis 2015, 263). Critical agrarian studies serves as the ideal approach for this study in that it provides theory and methods well equipped for undertaking a historical overview of hop production in Sweden. In addition, it also functions as a lens for investigating how the paradigm shift to global agri-food systems has reinforced the decline of Swedish hop production. The food regime project developed by Harriet Friedmann and Philip McMichael (1989) is significant for describing this issue. This concept will be introduced further in the theoretical framework section.

The narrative that is constructed using critical agrarian studies also helps to contextualize why the existence of Byhumle as economic localization in practice is significant. Byhumle’s presence considering historical agricultural transformations in Scandinavia and the paradigm of globalized hop production can be critically analyzed because of the choice of this framework. This local contra global discourse echoes one of the key traits of political ecology outlined by Karl Offen (2004, 22-23); that it is intra-scalar. What follows is an explanation of

the preliminary theoretical framework of this research as well as the methodology for data collection and analysis.

## THEORETICAL FRAMEWORK

Embedded in the critical agrarian studies approach of this research is a theoretical core based on Marxian thought. I utilize the term *Marxian* as opposed to *Marxist*, because I agree with the anthropologist Eric Wolf's (2010[1982], xxi) observation that *Marxism* "denote[s] a particular kind of politics", while *Marxian* utilizes the "analytically useful and intellectually productive" concepts of its progenitor and successors. This theoretical core permeates the concepts on which this research is built. For example, land-use changes in the form of enclosures will be critically analyzed through Marx's (n.d.[1867]) formulation of primitive accumulation. In addition, the work of Harriet Friedmann and Philip McMichael (1989) on food regimes is a Marxian analysis of capital concentrations in the world-system and their relationships to agricultural production. This analysis is extrapolated to discussing how the concentration of power within the global hop trade has been shared by multinational trading firms. Linking this to the regional history of agricultural transformation in Sweden provides a historical context to the decline of hop production and how this is reinforced.

### **Primitive Accumulation**

Capitalist production has its origins in sixteenth-century Europe, following the diffusion of feudal societies. Primitive accumulation is the historical process through which capitalism came to be hegemonic. According to Marx (n.d.[1867], 786), primitive accumulation "is nothing else than the [...] process of divorcing the producer from the means of production". This process is carried out in coercive ways, whether by the state, the nobility, or through colonialism. However, Marx (ibid, 787) acknowledged that "the history of this expropriation, in different countries, assumes different aspects, and runs through its various phases in different orders of succession, and at different periods". In Sweden, this historical process was facilitated by two separate enclosure movements; the first in the mid-seventeenth century and the second at the beginning of the nineteenth century. Enclosures are defined in this study as the consolidation of small landholdings into larger estates.

Marx argued that two prerequisites were needed for the emergence of capital. First, peasants needed to be “freed” from ownership of their means of production – i.e. land and tool ownership. Secondly, the peasantry must be able to sell their labor to the new owners of the means of production (Tilley et al. 2017). The two periods of enclosures in Sweden did precisely this and were critical to the transformation of agricultural production; *viz.* land-use changes and the types of crops produced – in the case of this research, hops.

### **World-systems Analysis and Globalized Agri-food Systems**

Societies around the globe have been in contact with each other since time immemorial. The spread of ideas, languages, cuisine, and tradition are but a few examples of the cultural sharing that geographically distinct peoples have engaged in. The division of labor we now experience builds on processes of world integration that can be traced to the sixteenth century. Immanuel Wallerstein (2004, 17) describes this interconnectedness that transverses various sociopolitical, ecological, and cultural units as a world-system; or “[one] that represents an integrated zone of activity and institutions which obey certain system rules”. The modern world-system is defined by capitalist production; the seeking of ever-increasing profit by those who own the means of production. This world-system began with the integration of Europe and its colonies in the sixteenth century but has since – as Marx (n.d.[1867], 786) predicted – extended its scale to a global level (Wallerstein 2004, 23).

This is particularly apparent in the globalization of agri-food systems. Here, globalization is defined as “the functional integration of internationally dispersed activities” and agri-food systems are defined as “a chain of activities from production (‘the field’) to consumption (‘the table’)” (Ericksen 2007, 2; Zimmerer and Basset 2003, 4). The “modification [of these systems] through global economic, political, and cultural changes” is another feature of globalization (Zimmerer and Basset 2003, 4). Thus, the globalization of agri-food systems refers to a paradigm shift where agricultural goods are produced, distributed, and consumed across the world-system in an endless pursuit and prioritization of profit.

It is important to distinguish the difference between internationalism and globalization. Internationalism is the process of linking local economies together in the pursuit of cooperation, whereas the essence of globalization is the integration of these local economies into a unified hegemonic regime (Hines 2000, 5). The basis of this regime is premised on the Ricardian

(2001[1818]) theory of comparative advantage, where agricultural production is situated in countries where the maximization of profit is possible due to cheaper labor, less restrictive environmental regulations, and/or access to resources. The scale and industrialization of global agri-food systems is increasingly controlled by a small number of corporations. This consolidation of power over globalized agri-food systems is conceptualized through the food regime project; a critique of capitalist hegemony in food systems that has been developed by Harriet Friedmann and Philip McMichael (1989).

## **Food Regime Theory**

The food regime project started as a methodological approach to understanding how national agricultural systems react within the geopolitical history of capitalism (McMichael 2013, 1). To do so, it utilized Immanuel Wallerstein's (1974) world-systems concept to describe the world in terms of varying concentrations of political and economic power; coupled with Michel Aglietta's (1979) argument that nation-states facilitate capital accumulation through regulation. Thus, the global food trade is defined as connecting "international relations of food production and consumption to forms of accumulation [which distinguishes] periods of capitalist transformation since 1870" (Friedmann and McMichael 1989, 95). Succinctly phrased, the food regime project specifies the relationship between "world ordering and agro-food trade" (McMichael 2013, 2).

During the past thirty years, the result of food regime scholarship has been the establishment of two food regimes: the British-centered diasporic-colonial regime and the United States-centered mercantile-industrial regime (ibid, 26-40). One regime is differentiated from the next by a process of structuring, crises, and restructuring as well as the control of market prices that is imposed on the global circuit of agri-food. The British-centered regime was structured around colonial agricultural exports feeding the industrial revolution of Europe during the turn of the century. A suburb example of this is presented by Sidney Mintz (1985) in his work on the commodification of sugar and its influence on modern history. What manifested during this colonial period was an integrated world trade of raw material, labor, and land; all regulated with enormous influence by the British Empire (McMichael 2013, 26-32). More importantly, this influence allowed for the market price to be set in favor of the British Empire which in turn garnered more political power (ibid, 23). The integrity of this structure was inevitably dependent on coercive force; whether physical, economic, or ecological.

Colonial uprisings left the food regime in crises, and subjugation was the means of restructuring. However, the plight of the oppressed was overcome through revolution in many colonies and the political and economic control of the food regime by the British Empire was relinquished (Wolf 2010[1982]).

The early twentieth century is marked by the collapse of the diasporic-colonial regime. The effect of both World Wars as well as ecological collapse of industrially ravaged soil left formally integrated international markets scrounging for stability (McMichael 2013, 37). The United States government's response was to implement government aid programs, specialize in commodity crops, and embrace technological advances in agronomy (ibid, 32-40). Determined to not allow the Communist Bloc to expand into war-torn countries, the United States began supplying these nations with its surplus goods. In subsidizing agricultural production, the United States was able to position itself as a global leader in agri-food trade. It maintained this power through aid programs that were meant to structure other nations' economies through "development" (ibid, 33). The crises that befell the mercantile-industrial regime was the neoliberalization of agri-food systems. The advent of free-trade policies allowed the consolidation of power to escape the confines of nation-states and instead bolster the economic and political power of multinational corporations. Unable, and arguably unwilling, to restructure its regime, the United States saw its control over global food circuits weaken (Friedmann 2005, 228; McMichael 2013, 15).

Corporate-Environment Regime. While there are varying suggestions on the exact parameters that the contemporary food regime encompasses, the consensus among scholars is that the current relationship between world-ordering and agri-food trade is distinctly different from the previous two regimes and revolves around the accumulation of economic and political power of multinational corporations (Friedmann 2005; McMichael 2005; Tilzey 2017). As McMichael (2013, 15; 47) points out, the first two regimes were defined as markets serving states, however the trend is "states now [serving] markets" through "the internalization of neoliberal market principles by states subject to privatization via mandated structural adjustment and free-trade agreements". This means that states, through these adjustments and agreements, facilitate unrestricted capital mobility within global agri-food systems. However, as of yet, no multinational corporations maintain the monopoly on all agri-food trade. Instead, we find fragmented control of industries by various corporations; however, all operate within

the same neoliberal trade structures (Friedmann 2005; McMichael 2005). The concentration of capital and power into a few multinational hop trading firms is an example of this.

### **Economic Localization**

Along with free-trade agreements and the corporatization of agri-food systems, technological advances affecting the rapidity in which commodities are produced and distributed has resulted in a complex network of globalized trade. In the context of globalized agri-food systems, trade liberalization allows for the unrestricted mobility of capital. The pursuit of profit-maximization determines why, who, and where agri-food commodities are produced within the world-system. If the circumstances of production and distribution for an agri-food commodity do not fit within the logic of capitalist accumulation – manifested through food regimes – then the commodity is unlikely to be produced for the global market. Thus, the efficacy of hop production in contemporary Sweden is questioned within this narrative.

A result of this complex network of agri-food systems is that it exacerbates the socio-ecological planetary crises we face, because it “consumes fossil fuel, water, and topsoil at unsustainable rates [and] contributes to environmental degradation, via air and water pollution, soil depletion and diminishing biodiversity” (Frankova et al. 2017, 346). The social implications of this are manifesting harshly in the underprivileged corners of the world, while also threatening the resilience of privileged countries through attrition (Tello and de Molina 2017, 28). This is echoed by Andreas Malm’s (2018, 191) statement:

“The most serious consequences of environmental degradation afflict people and other species *outside of the capitalist class and its circuits of accumulation*, and [...] the balance of evidence suggests that capital can *thrive by ravaging the earth* – not forever, of course, but under the crucial time span when crises such as climate change can still potentially be mitigated” [emphasis in original].

The relationship between society and nature is bridged in part by agriculture; thus, the impetuous growth of industrialized global agriculture comes at the exploitation and expense of the marginalized.



A possible remedy to these crises is represented by the localization of agri-food systems. Eva Frankova and Nadia Johanisova (2012, 317) define this approach as economic localization, which is:

“both the process and the result of moral, political and practical support of as many localized aspects of production and consumption as possible and desirable. More specifically, it includes preferring local factors of production, their local ownership, local capital flows and orientation primarily on satisfaction of local needs.”

By localizing an agri-food system – such as the hop industry – chains of production become less complex and negative externalities can be more readily monitored and addressed (Tello and de Molina 2017, 34-43). While hop production is a niche and marginal practice in comparison to other agri-food commodities such as soybean, maize, and wheat, its existence within a globalized context undeniably contributes and worsens the socio-ecological crises that persist. In addition, economic localization provides a challenge to the Ricardian theory of comparative advantage and its inability to restrict capital mobility. Through economic localization, communities regain autonomy in the production, distribution, and consumption of goods. Thus, capital mobility is restricted to the community. This is a contradiction to the freedom of mobility capitalists hold within the paradigm of trade liberalization and globalization. Economic localization also breaks away from the prioritization of profit, and instead pursues social and environmental sustainability (Shuman 1998, 6).

## METHODS AND METHODOLOGIES

Because of the two-fold nature of this study, different qualitative methods of data collection and analysis were used to answer the research questions and sub-questions. Within each approach to these questions was a synthesis of theoretically informed and triangulated methods, which “is one of the hallmarks of political ecology” (Davis 2015, 265). The methods and methodologies are separated into two sections based on their corresponding analytical framework: critical historical analysis and case study analysis. The first research question and sub-questions<sup>3</sup> were approached through critical historical analysis, while the second research

---

<sup>3</sup> RQ1: Despite a rich history of hop production and increasing national demand, why has hop production in Sweden declined to the levels we are seeing in the twenty-first century? RQ1.1 How have changes in agricultural land-use facilitated the decline of hop production in Sweden? RQ1.2 How has the paradigm shift towards globalized agri-food systems reinforced the decline of hop production in Sweden?

question<sup>4</sup> was investigated using case study analysis. Interviewing was a research method used for both parts of the study, so a thorough definition of the method and methodology is described in the Critical Historical Analysis section with a brief discussion on how it contributed to the research in the Case Study Analysis section.

### **Critical Historical Analysis**

This study has followed Diana K. Davis' (2015, 271) declaration that “all political ecology research should include critical historical analysis as a key component.” Historical analysis in general is a time-consuming process of collecting various archival, documentary, and observational data. However, “tak[ing] a critical perspective, that is, finding those sources that don't simply repeat biased, triumphalist stories of the past [...] represent[s] a substantial investment of time on the part of the researcher” (ibid, 264). In this way, critical historical analysis is “one that views all social phenomena and historical events from the point of view of continually changing systems of social relationships and dependencies”; for this research, I have adopted a Marxian lens (McNabb 2015, 245). In line with this definition, the forms of data that were collected are diverse because “the sources of [...] history are no longer the archives of governments or the diaries of important people, but oral histories, private letters, cultural artifacts and paraphernalia, photographs— anything that helps tell a story” (ibid, 248).

On a very practical and general level, historical sources can be divided into two kinds; “testimonies of witnesses” and “remains”. Testimonies are oral or written accounts that detail an event in time. Remains on the other hand are artifacts still in existence that have resulted from social processes; for example: buildings, hopyards, maps, evidence of hop use in the archaeobotanical record, and the tradition of brewing hopped beers (Howell and Prevenier 2001, 17). The following subsections will detail the methods of data collection used and how they are relevant to the critical historical framework of analysis.

---

<sup>4</sup> RQ2: How does the urban hop farm Byhumle exemplify a return to small-scale, local hop production in a Scandinavian context?

Archival research. Since the mid-1970's, a new tradition of archival research based on ecological analysis has evolved together with the growth of critical agrarian studies and political ecology (Edelman and Wolford 2017, 963; Ventresca and Mohr 2002, 808). Since this study is situated within a period of over half a millennium, archival research provides contextual data that is situated within that time frame, as the sources were “usually meant for some practical purpose at the time of their creation” (Hofer 2011, 25). Archives are appropriate places to gather historical testimonies of witnesses. Data collection was made particularly easy with the digitized National Archives of Sweden, *Riksarkivet*<sup>5</sup>, the online platform *Kringla* created by the Swedish National Heritage Board, *Riksantikvarieämbetet*<sup>6</sup>, and the online library of Uppsala University<sup>7</sup>. I would be amiss if I did not mention the help I received from the Lund University Faculty of Social Science librarian Ellen Fall as well as the History library guide and database<sup>8</sup> compiled by Jenny Hallström from the Lund University Faculty of Humanities and Theology.

Aside from using designated key terms such as *humle*, *humleodling*, *humlegård*<sup>9</sup>, I also used a snowball-type sampling method where I would use an archival source or document to find references to others. For example, while attending the Malmö Museer exhibition *Med Smak av Humle: Odlas och Brygg*, I learned that in 1456 King Karl Knutsson Bonde gave the community of Tierp a coat of arms with hop cones on it. As I searched through the database of *Riksarkivet* with the terms *humle* and *Tierp*, I came upon a webpage displaying a cadastral map of a farm in Tierp that grew hops accompanied by a description of hop production in Sweden (Figure 1).<sup>10</sup> On this webpage was the mention of the 1734 Law on Construction Codes and its regulation of hopyards, which I followed to acquire a digitized version of the law. The shortcomings of the translation tool of my internet browser is highlighted in Figure 2. Fortunately, my Swedish partner helped in times of uncertainty.

---

<sup>5</sup> Website: <https://riksarkivet.se/>

<sup>6</sup> Website: <http://www.kringla.nu/kringla/>

<sup>7</sup> Website: <https://ub.uu.se/hitta-i-vara-samlingar/verk-och-samlingar-i-urval/>

<sup>8</sup> Website: <https://libguides.lub.lu.se/c.php?g=296971&p=1983079>

<sup>9</sup> *Humle* is the Swedish and Danish word for hops. *Odling* is the Swedish word for farming and *gård* is the word for yard.

<sup>10</sup> Website: <https://riksarkivet.se/manadens?item=114026>

Figure 1: Limitations of using the translation tool of my internet browser

Swedish Text	Enligt 1734 års lag, i Byggningsbalkens 7:e kapitel ska alla hemman ha en humlegård. Ett helt hemman skulle ha 200 stänger humle och bonden fick böta om humlegården förföll. Bestämmelsen upphävdes genom kunglig förordning den 20 november 1860.
Translation Using Internet Browser	According to the 1734 law, in the 7th chapter of the Building Bar, everyone at home must have a bumblebee. An entire homeowner would have 200 shutters hops and the farmer had to pay if the lobster farm fell due. The provision was repealed by Royal Decree on November 20, 1860.
Actual Translation	According to the 1734 law, in the 7 <sup>th</sup> chapter of the Construction Code, all farmsteads must have a hopyard. A farmstead that pays full taxes should have 200 hop poles and the farmer had to pay a fee if the hopyard degraded. The provision was repealed by Royal Decree on the 20 <sup>th</sup> of November 1860.

Not only are sources and documents presented as testimonies of witness, but they can also be found in the form of remains as well; for example, historic maps, illustrations, and trade reports (Bowen 2009, 27-28). The critical evaluation of the validity of these documents and the relevance they have had for the narrative of this research is referred to as document analysis. This tool benefits critical historical analysis because it allows “researchers [to] understand the historical roots of specific issues and can indicate the conditions that impinge upon the phenomena currently under investigation” (ibid, 29-30). In collecting this historical material, it allowed for critical historical analysis to “reveal features of social life that would otherwise be difficult if not impossible to perceive and [put] analytic findings” in focus (Ventresca and Mohr 2002, 810). For example, the changes in land-use as evidenced through historical maps and accounts ties to the literature compiled for this study. Document analysis thus serves as the bridge between archival research and literature review.

Document analysis was also used to investigate the state of the global hop industry. This information was found in industry reports from leading multinational hop traders such as Barth-Haas and Steiner and laws surrounding hop production in Sweden. The purpose of this was to elucidate the prevalence of hop production in Sweden, as well as the demand for hops, to contrast it with historical forms. Of critical importance was the Observatory of Economic Complexity tool developed by Alexander Simoes.<sup>11</sup> It is an online interface to allow the user to visualize trade-flows between countries.<sup>12</sup> Data used in this research will be cited as OEC in the footnotes. The next section is a description of how literature was selected for review and the contributions to this study.

<sup>11</sup> Website: <https://atlas.media.mit.edu/en/>

<sup>12</sup> This tool is licensed under a Creative Commons Attribution-ShareAlike 3.0 Unported License, which can be found by visiting this website: <https://creativecommons.org/licenses/by-sa/3.0/>

Literature review. Because of the nature of this research, literature was explored as it related to the theoretical framework, the presented topic – historical hop production in Sweden, and its ability to offer insight into answering the research questions. Through the literature review it became apparent that there is ample research already conducted on historical agricultural transformations in Sweden (Fridlitzius 1979; Magnusson 2000; Myrdal 2011; Olsson and Svensson 2010; Schön 2012). Also, there are a few authors that have engaged and provided a well-composed history of hop production in Sweden (Karlsson Strese and Tollin 2015; Nilsson 2011). However, the bulk of these writings are presented in Swedish, which places this Anglophone study in a special position.

The qualitative data analysis computer software Nvivo was very useful in the preliminary steps of organizing the studies that were gathered. Using basic themes – such as: hop biology, hop farming, hop farming in Sweden, global agri-food systems, and enclosures, I was able to studies that were either redundant or tangential. This allowed the study to move in a more focused direction by not following any distractions. The knowledge gained from reading these texts helped me to discover gaps in information concerning hop production in Sweden. This is especially so in terms of the contemporary hop industry in Sweden. These identified gaps informed my selection of interviewees and interview questions. They were also used to corroborate the information gained through these interviews. The next section outlines how and why interviews were used in this study.

Interviews. Qualitative interviews differ from ones conducted in a quantitative study in a couple of ways. First, they are typically semi-structured or unstructured to allow for a free-flowing exchange of ideas between the interviewer and interviewee (Bryman 2012, 470). This allows for the flexibility of the interview, so that it is not constrained between rigid and set questions. This means that it gives freedom for the interviewer – and the interviewee – to ask impromptu follow-up questions, which is “crucial for digging below surface appearances” and exploring areas that could be otherwise glossed over (Thomas 1993, 40). Secondly, qualitative interviews place emphasis on the point-of-view of the interviewee. In doing so, they shift the role of expert from the interviewer to the interviewee (Bryman 2012, 470). This is an important feature of the way interviews were conducted for this research in that contemporary hop farmers are practically more aware of the challenges that exist than I am as an academic. I was also

curious to learn whether those who grew hop saw themselves as preserving tradition or as pioneers.

Several types of interviews were conducted for this portion of the research. The type of interview was determined by whom was being interviewed and by the knowledge they potentially possessed. Because this study focused on the agricultural aspect of hops, semi-structured interviews were conducted with hop farmers to address crucial questions I had. Interviewees who held other roles within the chain of production were interviewed with more freedom to allow for the unrestricted flow of ideas. This was beneficial in uncovering issues and ideas I had not thought of. Interviews will be cited as footnote references from this point forward. The types of interviews are as follows:

- An unstructured interview was conducted on-site with an associate of a homebrewing supply store in southern Sweden. This interview took place on November 19, 2018. The interview is cited in the footnotes as BB1.
- An unstructured interview was also conducted with a brewer from Malmö at their brewing facility. This interview was conducted on April 20, 2019. This interview will be cited in the footnotes as MB1.
- An e-mail questionnaire was sent to eleven potential interviewees who were hop farmers in Sweden (APPENDIX A). Five farmers replied, two of which participated in semi-structured interviews over the telephone. Follow up questions, or probes, were sent to two of the remaining hop farmers for clarity and to expand upon ideas presented in the initial responses (Meho 2006, 1290). These eleven hop farms were chosen based on their appearance in a Facebook search of company profiles that had the word *humle* in the name. This limited the pool of potential interviewees to those who had Facebook pages, but allowed access to those that only had Facebook pages and no other form of online representation. The e-mails were sent via Facebook messenger app. This platform was chosen because it allowed for ease of identification of hop farmers in Sweden. The reasoning behind using e-mail interviews is based on cost and efficiency. This manifests in several ways: “e-mail interviews cost considerably less to administer than telephone or face-to-face interviews[, researchers] can invite participation of large or geographically dispersed samples of people by sending them e-mail messages individually [, and the] use of e-mail in research also decreases the time and cost of transcribing” (ibid, 1285). The limitation of sending e-mails, is the impersonality of it. Interviews could potentially be put off by receiving a random e-mail from someone they do not know, or have a filter installed that blocks such correspondence. The initial emails were sent April 24, 2019. The telephone interviews took place on May 2, 2019 and May 21, 2019. The three interviews that were conducted over e-mail will be listed as HF1, HF2, and HF3 in the footnotes, while the telephone interviews will be listed as HF4 and HF5.

- An e-mail questionnaire was sent to a member of the National Gene Bank (APPENDIX B). This organization is cultivating naturalized Swedish hop varieties for genetic and commercial research. The e-mail was sent April 9, 2019. This interview is cited in the footnotes as NG1.

The objective of having a range of interview styles with different stakeholders of the Swedish hop industry was to provide a holistic view of the chain of production. The reason for having coded names for each interviewee – i.e. BB1, MB1, HF3, and NG1 – is to maintain anonymity. For this study the only relevant identifying information needed was their position within the chain of production of the Swedish hop industry.

For the e-mail interviews with Swedish hop farmers, I prepared two types of interview guides following Steinar Kvale’s (2007, 8-9) suggestion that one be thematic and the other dynamic. The thematic interview guide served as a theoretical scaffold upon which dynamic questions will branch. Dynamic questions allow for easier understanding between interviewer and interviewee. Because of the branching nature of dynamic questions from thematic ones, it allowed the interviewees’ answers to be coded according to theme and theory; which was beneficial because the follow-up semi-structure interviews tended to be more difficult to code compared to the structured ones (Bryman 2012, 470; Kvale 2007, 9). However, thematic coding was not paramount to applying a theoretical analysis. General coding was conducted more for organizational purposes and for seeing how answers meshed with theory. I was not concerned so much with how my interviewees said things or expressed themselves, as with the content of their answers.

Site Visits. In order to produce a more holistic study, site visits were conducted at various locations to acquire first-hand knowledge of practices related to the Swedish Hop industry. This was done by using observation and taking fieldnotes. Robert K Yin (2011, 126) argues that “although site visiting offers a shallower experience for any single field setting than doing participant-observation, a major advantage of using site visits as a fieldwork procedure is the ability to collect data from many field settings as part of the same study”. By conducting these site visits, I was able to connect theory to real-world observation as well as relate the data collected to what was being discussed in the literature. Site visits were also a practical way of collecting observational data on remains that are related to hop production in Sweden. These site visits are cited in the footnotes with the term fieldnotes and the date the notes were taken. A list of the locations and the material found there follows:

- September 11, 2017: Botanical Garden Växthus in Lund, Sweden. There was an exhibit that showcased the plant material found in Bishop Peder Winstrup's coffin who died in December of 1679. The remains were disinterred after having stayed below Lund Cathedral for three and a half centuries. Hops were found throughout the coffin, notably in the pillow and underlining. The body of Winstrup was regarded as exceptionally preserved and it was hypothesized that this was due to the hops and other herbs present. Hops were well known in Winstrup's day for the anti-septic, preservative, and aromatic qualities. This made them an ideal tool for preserving a deceased body until after the funeral, which in Winstrup's case was over a month after death.<sup>13</sup>
- April 18, 2018: Malmo Museer in Malmö, Sweden. At the museum, there was an exhibition on the history of hop production and beer brewing in Sweden titled, *Med Smak av Humle Odlas och Brygg*. This site visit strongly influenced the direction and focus of this research.
- September 24, 2018: Torup Castle in Torup Sweden. On the castles grounds there is a recreated hopyard growing the crop in the traditional way. Hops were first planted there by Görvell Fadersdotter Sparre in the mid-1500s. At the time, Torup and the rest of Scania were part of Denmark. When the Swedes took over the castle, the cultivation of hops persisted.<sup>14</sup>
- April 14, 2019: Brewery in Malmö, Sweden. I attended a "brew day" with a local Malmö brewer to gain firsthand experience of the end use of hops. This also was informative how hopped beer production has evolved in Sweden throughout the centuries and the varieties of hops a contemporary Swedish brewery uses.

## Case Study Analysis

Political ecology is described as "[rooted] in critical scholarship in general and the disciplines of geography and anthropology in particular [and] represents a multidisciplinary research approach to society-nature relations" (Offen 2004, 22). Because of the origin of the approach and my own background in anthropology, the methods that I have utilized for the case study analysis were ethnographic in nature. This study is not an ethnography, as I have not looked to define the culture of Byhumle, but instead I have illustrated how its operations can be regarded as economic localization in practice. The use of participant observation and interviews has allowed me to gain first-hand experience of the farm.

---

<sup>13</sup> Fieldnotes: September 11, 2017

<sup>14</sup> Fieldnotes: September 24, 2018



Byhumle is an urban hop farm in Copenhagen, Denmark. Despite this hop farm being in Denmark and not Sweden as the rest of this research has focused on, it exists within a context that evokes the shared histories of Scandinavia. Hop production in the Scandinavian context has a tangible and specific form that derives in part from geography, political and social overlap, and cultural diffusion. The hop farm is unique in the sense that it is located within a metropolis, it is community-driven, and has thus far solely sold to local microbreweries. This is contradictory to the massive global-scale that multinational hop traders such as Barth-Haas operate at (Pavlovic and Pavlovic 2012).

Participant observation. I have used participant observation to immerse myself in the daily routines of the hop farm. I have learned about the incentives and ideologies of its founders, members, and volunteers and explored why they operate countercurrent to the mechanisms that drive the global distribution of hops. To understand these motivations, I have used my anthropological training in ethnography to conduct participant observation alongside interviews. It is in participant observation that I was granted what D. Soyini Madison (2012, 22) calls entry into the field of study. By accessing this intimate knowledge, I have been able to relate theory to the practice of managing an urban hop farm within a Scandinavian context and critically investigated whether it can be viewed as economic localization in practice. A list of field days and the main activities are as follows.

- March 28, 2019: On this day a meeting was held to vote on whether the farm should stay a project of the company Out of Office Architecture or become a volunteer organization. A preliminary board was elected this night as well.
- March 31, 2019: In previous years, the farm was in a different area of the city. This working day consisted of setting up the farm by moving around the containers the hop plants grew in and clipping away the old growth from the previous season.
- April 17, 2019: This day was a long workday consisting of moving hop pants around and setting up the wiring system.
- May 17, 2019: The location of the hop farm is in an old parking lot that is now converted into an urban community space called Garage Park NV. The inaugural ceremony for the opening of this space took place this day and was a time to showcase the farm to the community.

Data collected through observation, unstructured interviews, and conversations will be cited in the footnotes as fieldnotes followed by the data.

Interviews. Unstructured interviews and conversations with the co-founders, Board members, and volunteers make up the bulk of the qualitative data extracted through my communications on the farm. However, one semi-structured interview was conducted with a long-time contributor of the farm. This interview is cited in the footnotes as BH1. Treatment of this data follows the same scheme as outlined for interviews conducted for the critical historical analysis portion of this research.

### **Limitations and Ethical Considerations**

The greatest obstacle that was presented in this pursuit of knowledge was the aforementioned issue of language. Not only was this a limitation regarding written information, but also in my interviews and conversations. While I am very grateful for those who had the patience and ability to speak to me in English, there is always the risk of misinterpretation or other limitations of interviewees speaking in an auxiliary language. To circumvent this, I allowed the interviewees to respond to any of my questions in their native tongue when necessary. This limited my ability to ask follow-up questions to some, albeit marginal, degree. It is my hope that I created a space where the interviewees felt comfortable articulating their thoughts. In doing so, I shouldered the responsibility of correctly translating these instances while transcribing and conducting my analysis.

Because of my decision to use ethnographic methods to understand the experiences and knowledge of people, I was obligated to undertake this study in the most inclusive and ethical way possible. To accomplish this, I utilized the ethical framework for ethnographers and anthropologists developed by Ron Iphofen (2013), as requested by the European Commission. While one must be critical of the colonial history of ethnography and anthropology and its relationship with western governments and institutions, it is nonetheless essential to familiarize oneself with the ethical context in which my research takes place.

Another important ethical consideration is that the agricultural commodity I am investigating – hops – is primarily used to produce beer; an alcoholic beverage. The abuse of alcohol is detrimental not only to individual health, but also societal health. It is without hesitation that I advocate for moderation. Alcohol abuse most certainly is counterproductive to social sustainability; however, it is my philosophy that moderate alcohol use is within the realm

of a sustainable future. That being said, this research seeks to investigate the production, distribution and consumption of hops in Sweden, not to end it.

### III

#### EARLY HOP CULTIVATION IN EUROPE

The first written mention of hops in Europe is clouded in mystery. Many claim that Pliny the Elder was the first to do so when describing the plant *Lupus salictarius* in his Natural History writings (Cradock 1841, 27; Edwardson 1952, 160; Moir 2000, 131; Parkinson 1640, 177; Wilson 1848, 686). Although this claim is echoed from volume to volume on hops and beer brewing, a closer look at the text gives no solid evidence that the plant Pliny is referring to is indeed what we know of as hops. Instead we are only given three identifiers: it is a wild plant, its young shoots can be eaten, and its Latin name translates to “the willow wolf”. While hops do fit the above description – hops are found growing wild in many landscapes, the young shoots are eaten in various cultures and are likened to asparagus, and Carl von Linnaeus also named the plant after its wolf-like tendencies to engulf other plants, this does not mean it is a conclusive identification. The linguistic commonalities between Linnaeus’ *Humulus lupulus* and Pliny’s *Lupus salictarius* come from Middle Age botanists unimaginative need to curate plants based on existing Greco-Roman typologies. Victor Hehn (1885, 360-361) convincingly argues that the term *luppolo* – meaning hop in some Romance languages – does not stem from *lupe* meaning “wolf”, as *Lupus salictarius* would have been named, but instead a Latinized spelling of the Germanic *hoppe* transformed as the French *houblon* and then translated to Italian including an article as *l’uppolo*. Because of the similarity in spelling to *lupus*, Middle Age Italian botanists were too quick to suggest that Pliny was writing about hops, when he could have very well been talking about another plant that is often confused with hops in historical literature; *Smilax aspera*, which exhibits similar growing behavior around willows (Cradock 1841, 27; Parkinson 1640, 177). It is possible that willows are a common denominator in describing hops because they not only provide structural support but promote nitrogen fixating bacteria in their root structures (von Wuehlisch 2011). Linnaeus’ choice to name the plant *lupulus* may have be a result of these early mistranslations. Hehn (1885, 361-362) provides examples of the historical use of hops in cultural ceremonies from Slavic and Baltic nations, where it is likely that hops were cultivated before reaching Europe. Hops are suggested to have originated in China, where it is still used in Asian and Middle Eastern medicinal practices (Murakami et al. 2006; Wilson 1848, 688). This supports the westward expansion hypothesis of its cultivation.

While hops are used for a variety of reasons – medicinal applications, eating the young shoots as food, its aroma as perfume, and creating fibers from the stock of the plant for textiles – the most prominent use is for its antiseptic and bittering qualities in the production of beer (Coles 1657, 347; Cradock 1841, 30; Edwardson 1952, 160; Karlsson Strese et al. 2014, 232; Parkinson 1640, 177; Wilson 1848, 687)<sup>15</sup>. One of the earliest written mentions of hops in Europe comes from an account of King Pepin le Bref donating *homularias* – hopyards – to the Monastery of St. Denis in 760 (Edwardson 1952, 161). The earliest written evidence of using hops for brewing beer is from an 822 statute from Abbot Adalhardus in Germany (Cradock 1841, 27; Hornsey 2003, 305). Fossil finds of hops are ubiquitous throughout continental Europe, with some finds in Scandinavia (Behre 1999; Heimdahl 1999; Lagerås 2003). Linnaeus posited that Goths encountered hops while migrating through the Slavic regions – namely modern-day Ukraine – and were the crop’s original propagators in Europe. This is contested by various botanists; however, it serves to underscore the historical relationship Scandinavian cultures had with hops (Cradock 1841, 27; Hehn 1885, 361-362; Hornsey 2003, 304). The presence of hops in lands visited by Scandinavian peoples increases the potential for those cultures to take the crop home with them, if they had not already been exposed to the crop from their Baltic and Slavic neighbors.

#### PRESENCE OF HOPS IN SWEDEN BEFORE THE SEVENTEETH CENTURY

The presence of hops in Sweden, notably wild or feral varieties, was well known to botanists throughout the Middle Ages (Cradock 1841, 30; Parkinson 1640, 177; Wilson 1848, 686). The earliest examples of hop use come from Iron Age Viking sites throughout Scandinavia (Heimdahl 1999; Lagerås 2003; Sloth et al. 2012).<sup>16</sup> It is suggested that hop cultivation reached Scandinavia around 1000 as evidenced by a strong presence of hop pollen samples found in the archaeobotanical record. By the thirteenth and fourteenth century hopped beer was a prevalent food source in Sweden and the rest of Scandinavia; with the most prized being imported from Germany and Prussia (Behre 1999). Hops became so valuable at this time that King Magnus Eriksson signed a law that made theft and early harvesting of hops punishable offences (Wilson 1848, 688).<sup>17</sup>

---

<sup>15</sup> Fieldnotes: September 11, 2017

<sup>16</sup> Fieldnotes: April 18, 2018

<sup>17</sup> *ibid.*

## The Country Law of Christopher of Bavaria

In 1442, Christopher of Bavaria – King of Sweden for the brief period of 1441 to 1448 – edited many of the laws found in Magnus Eriksson’s decree (Cradock 1841, 30). Christopher of Bavaria kept intact the former laws regarding hop theft and harvesting but added a new provision that stated any farmstead that was considered capable of paying full taxes must have forty hop plants growing in their hopyard (Wilson 1848, 688). This new addition to the law set in motion a shift in the way hops were produced in Sweden. Whereas the scale of hop production before was marginal and typically self-sufficient for each home, this mandatory growth increased the scale of production significantly. Production increased so much in certain provinces that it became engrained in their identities. For example in 1456, King Karl Knutsson Bonde gave the province of Tierp a coat of arms that displayed three hop cones; a variant of this is still in use today (Figure 3).<sup>18</sup> By the end of the fifteenth century hop production had become a pervasive craft and is exemplified by the Vadstena Abbey – located on the northeastern shore of Lake Vättern – having over twenty farms that paid rent in hops. Hops are still found there that may be clones of the original plants.<sup>19</sup>

Figure 2: Municipality coat of arms



The image on the left is the coat of arms of Tierp Municipality, which pays homage to the history of hop production in the region.<sup>20</sup> The image on the right is the coat of arms of Vingåkers Municipality, another municipality in Sweden that proudly displays their history of hop production.<sup>21</sup>

## Hop Production During and After Gustav Vasa

During to the reign of Gustav Vasa – 1527 to 1540, peasants in Sweden typically lived within the village system. The oppressive form of feudalism found in continental Europe had not flourished in Sweden, as about half of the farmers in Sweden were freeholders (Tollin 2011,

---

<sup>18</sup> *ibid.*

<sup>19</sup> *ibid.*

<sup>20</sup> Left image: Tierps Kommun. Accessed May 10, 2019: <https://www.tierp.se/images/18.4165e017158b51defa339ff9/1480513756957/tierps-kommun.png>

<sup>21</sup> Right image: Vingåkers Kommun. Accessed May 10, 2019: <https://www.vingaker.se/wp-content/uploads/2016/08/vingaker-logo.png>

39-40). It has been suggested that this was the case because Sweden was located in the periphery of the world-system with very little to offer in terms of trade. Iron and forest resources made up the bulk of Swedish exports, as the agricultural output was just enough to sustain the population (Wallerstein 1974, 312). In the village system, land was divided amongst households equally, which meant that both fertile and unfertile land were divided evenly. While this demanded more work to be done by a single farmer having multiple strips of land in various parts of the village, it allowed for village society to be more egalitarian (Schön 2012, 34).

At the time there were very few large-scale farms and more land was controlled by the peasantry than by the nobility (Tollin 2011, 39-40). Hop production was done on an individual basis and was still regulated by the laws set by Christopher of Bavaria. Unfortunately, this was not enough to meet the demand for hopped beers, thus hops and beer were imported from Germany. This was despite efforts made by Gustav Vasa to increase production (Wilson 1848, 688).

The scale of hop imports was unique because during this time Sweden was rather isolated and unconcerned with import trade (Hecksher 1954, 77-78). This isolation would soon be disrupted as the nobility began to take on more entrepreneurial roles (Wallerstein 1974, 159). Because agricultural output was low in Sweden, entrepreneurial nobles had no desire to monopolize it; instead, they turned their aspirations towards land in other countries. The result of this would lead to the formation of the Swedish Empire; an age of war, trade, and drastic land-use changes (ibid, 312).

## WAR, ENCLOSURES, AND HOPS

Starting with the leadership of Gustav II Adolf in 1611, Sweden grew to become a military powerhouse dominating continental Europe. The Swedish Empire is defined as lasting between 1611 and 1721 (Tollin 2011, 40; Scott 1988, 162-209). This near-century timeline is characterized by war abroad and socio-political transformations domestically. These transformations greatly affected peasants and agricultural production through various land-use changes (Tollin 2011, 40). Amid these changes, the cultivation of hops was also affected.

Under Gustav II Adolf's reign, the nobility began to amass unprecedented power and freedom. Their entrepreneurial projects were facilitated by the Crown in the form of grants and

donations (Scott 1988, 186). In a zero-sum fashion, as the power increased for the nobility, the independence of the peasantry decreased. The grand project that created this regime shift was a set of enclosures that occurred at the behest of a regency government comprised of nobles following the death of Gustav II Adolf in 1632 (Tollin 2011, 40).

### **Enclosures by the Nobility**

The nobility gained this power due to a change in expectations regarding how one would display loyalty to the Crown. Initially, each noble was obligated to provide mounted knights for the military. The new expectation was that nobles were to hold government positions and facilitate the Crown's rule (Scott 1988, 186). This was reinforced by leading military positions being reserved for nobles. In addition, exposure to the feudal system that persisted in continental Europe by nobles in the military inspired socioeconomic restructuring and land-use change (Tollin 2011, 40). The power of the nobility grew so much that the period between 1560 – the year Gustav Vasa died – and 1652 their “holdings [...] increased some two and a half times.” (ibid, 39). The enclosure movement that manifested from this power-grab “broke up the medieval village structure, including extensive mixed ownership of cultivated land and large commons for pasturage, replacing it with agricultural units characterised by limited and more continuous private holdings” (Schön 2012, 22). An ordinance from 1684 furthered these enclosures by restricting owners of land deemed too small to be productive from farming; thus, they were coerced into ceding their land to those who held enough land to farm (Magnusson 2000, 19).

Because land is the ultimate means of productions for the peasantry, the removal of ownership forces members to sell their labor through other means (Harvey 2017, 36). This is the basis of Marx's (n.d.[1867]) formulation of primitive accumulation. As the nobility garnered more wealth from the exploits of the Swedish Empire abroad, it was converted to the creation of manorial estates which held tax exemption status; these often included a large hopyard (Tollin 2011, 48). The profit generated from tax exemption and tenant rents created widespread wealth inequality (Nilsson 2011, 9; Tollin 2011, 40). This illustrates why Karl Polanyi (2001 [1944], 37) called enclosures “a revolution of the rich against the poor”.

### **Specialization**

In order to combat the rising taxes and rent imposed by the Crown and nobility, peasants across the country began specializing in lucrative industries to make ends meet. For example, the mining, shipbuilding, and war industries boomed during this century of war (Myrdal 2007, 91; Scott 1988, 176). These industries also demanded wood, charcoal, timber and other forest resources to keep up with production; thus, “peasants who could produce and sell the demanded forest resources could pay the higher duties more easily and without risking pauperization” (Nilsson 2011, 9-10). Due to this set of enclosures by the nobility, there was a labor surplus of landless peasants who entered these growing industries as wage-laborers (Schön 2012, 27). The Crown facilitated this conversion of the peasantry by bolstering and supporting these burgeoning industries. One example of how this was accomplished was ensuring a proper “supply of food, draught animals and other necessities” were given to miners working in areas that lacked arable land (Nilsson 2012, 10). This division of labor and change in mode of subsistence was an agricultural precedent that would later be foundational for Sweden’s integration into globalized agri-food systems.

The peasantry itself witnessed radical individualization and specialization (ibid, 9). For example, peasants in Västergötland began specializing in livestock breeding and decorative wood carving. Specialization became crucial coping mechanism for the peasantry as climatic changes brought by the Little Ice Age made grain production difficult (Myrdal 2007, 90). Overtime, an emergence of regionalized production was realized, and specialization became more widespread. Hop production during this time was not only becoming a specialization, but also a regionalized trade. The cadastral maps that were created in the 1630s and 1640s show that Värmland, Västergötland, and northern Uppland were significant hop producing regions, while in Scania – which would soon become a part of Sweden – production was relatively low (Nilsson 2011, 12).<sup>2223</sup>

Hops as a cash crop. Cash crops are agricultural products that are farmed for their commercial value rather than household use. Hop production was a lucrative venture for many peasants for several reasons: the tradition of hop cultivation was a well-known and ubiquitous craft, hop production in continental Europe had stagnated due to on-going wars, and the demand for hopped beers was high (Hornsey 2003, 308; Neve 1991, 26; Nilsson 2011, 12). In the sixteenth century, there were around ten thousand hopyards in Sweden, growing around two

---

<sup>22</sup> For a digital map of hopyard locations between the years 1630 and 1655 visit: [jordebok.ra.se/kartsok.php](http://jordebok.ra.se/kartsok.php)

<sup>23</sup> Fieldnotes: September 24, 2018; April 18, 2018



and a half million plants (Karlsson Strese and Tollin 2015, 278). Hop cuttings were imported from Germany, Poland, and the Czech Republic, with the German Brunswick variety considered the best suited for Sweden's environmental conditions (Cradock 1841, 30; Karlsson Strese et al. 2014, 232; Lundberg 1763, 182).<sup>24</sup> Hop production was an activity that took place among various other trades on a farmstead. It was seldom a practice that was meant to be the sole source of income. Pia Nilsson (2011, 13) has suggested that in order for self-sufficiency in hop production to be reached, each farm within a parish would need to grow one hundred plants. However, the law only required each farmstead to grow forty plants. Even when the Civic Code of 1734 was passed that required farmsteads to grow 200 plants, demand had far surpassed the infrastructure for production (Riksdagen 1840, 75). Despite this, Swedish hop production was still at its maximum in the period in between the seventeenth and eighteenth century.<sup>25</sup>

## THE AGRICULTURAL REVOLUTION AND NEW ENCLOSURES

Specialization continued to develop within the peasantry during the eighteenth century; partly due to technological advances, population growth, land acquisition, and the rise of the market economy (Nilsson 2011, 9; Schön 2012, 52). This period of specialization was not isolated to Sweden but was in fact a widespread agricultural transformation referred to as the Agricultural Revolution. The late eighteenth century saw a mass transfer of land ownership from the Crown to the peasantry. This was spurred by a fiscal crisis that befell the Crown in the wake of the collapse of the Swedish Empire. In order to generate revenue, those that had previously farmed land under the ownership of the Crown were given the option to purchase the land and instead pay taxes on output rather than rent (Magnusson 2000, 23).

During this time in Sweden, agricultural output allowed for population growth throughout all classes. For the category of land-owning peasantry, this resulted in a decreased population percentage because the growing number of children that survived into adulthood surpassed the amount of available farmland (Schön 2012, 23;30). However, the greatest transformation of Swedish agricultural production was a new wave of enclosure reforms that swept the country starting around the mid-eighteenth century (Fridlitzius 1979, 5).

---

<sup>24</sup> Fieldnotes: April 18, 2018

<sup>25</sup> Fieldnotes: April 18, 2018

## Enclosure Reforms

Two enclosure reforms ran parallel during the late eighteenth century. One reform looked to the grossly concentrated manorial lands and sought to break them up into private holdings. At the beginning of the eighteenth century, roughly one-third of arable land was owned by the nobility (Magnusson 2000, 21; Olsson and Svensson 2010, 283-84). Much of this was in the form of manorial estates that were tax-exempt. Over a century of landowners choosing to generate income from rent rather than make investments in the productivity of their land, bred much discontent among renters who could produce just enough to pay taxes and avoid starvation. This became a highly inefficient model during an era of great market growth for grains. Furthermore, the tax-exemption status of manorial lands was dissolved at the end of the eighteenth century. Now having to pay taxes on large swathes of land that had been accumulated over the past century, these nobles wished to sell off the land (Magnusson 2000, 21). Landowners could conduct an enclosure without consulting the peasants that rented the land, which led to their displacement and transition into the wage-labor economy (Fridlitzius 1979, 8).

The second reform targeted the old village structure of divided strips of land and sought to parcel land in contiguous blocks (Olsson and Svensson 2010, 283-84). This was done to increase the efficiency of production because more intensive and rational farming could be accomplished on a connected piece of land instead of scattered plots throughout the village (Schön 2012, 34). This new system also gave a higher degree of autonomy to each farmer. As the market economy became increasingly influential, this autonomy allowed farmers to pursue profit-motivated production schemes. Much like the ability of noble landowners to enclose their manorial estates, a single freeholding peasant could submit an application to enclose an entire village and switch to this new system (Olsson and Svensson 2010, 294). It is important to remember that the old village structure was in place to create egalitarian distribution of fertile and unfertile land. Inevitably, these reforms led to inegalitarian distributions of these lands. It has been argued that the old system could have produced the same efficiency as the new contiguous system (ibid, 279). The culmination of these movements was first realized in the 1803 enclosure legislation passed in Scania, followed by legislation in 1807 for the rest of the country (Schön 2012, 37; Olsson and Svensson 2010, 294). Nonetheless, the Swedish economy was experiencing significant growth in the beginning of the nineteenth century thanks in part to these enclosures and other developments in agriculture (Schön 2012, 31).

Grain as the new cash crop. As the population expanded, the need for grain grew considerably. This growth in the market for grains created the foundation for entrepreneurial capitalists to produce surpluses for export (Schön 2012, 34). In a short timeframe, Sweden had shifted from importing grain to fend off starvation to becoming a major player in the international market; with production of grain more than quadrupling (Olsson and Svensson 2010, 284; 296). The economic incentive to produce grain was due in part to the liberalization of trade during this time (ibid, 297). Wealth disparity increased the size of the poor population unable to afford the high grain prices, which contributed to the surplus (Schön 2012, 39). As a result of this profit-driven shift, “deepened property rights were established and successive investments in human capital followed [that] provided the prerequisites and the framework for the subsequent industrialization process.” (Olsson and Svensson 2010, 298).

### **Depopulation of the Peasantry**

A result of these enclosures was the creation of a new peasant underclass (Schön 2012, 27). Like the landless peasants of the enclosures spurred by the regency government after Gustav II Adolf’s death, this new underclass was landless and forced into a position of servility; which Marx (n.d.[1867], 792) argues the capitalist system demands. In addition to these landless peasants were the children of farming landowners who would not inherit land. For various personal and economic reasons, this population found itself also entering the wage-labor economy which had expanded exponentially (Schön 2012, 34). The creation of the peasant underclass and proletarianization – the process of becoming a wage-laborer – of the children of the peasantry laid the foundation for the Industrial Revolution to take place in Sweden.

Industrialization. Industrialization is a process that has certain prerequisites: “there must be markets to sell the products, workers that man the production process, and capital that pays for buildings and equipment as well as financing everyday operations” (Schön 2012, 44). These new underclasses groups found themselves selling their labor to the iron industries that were recovering from a recession brought by the end of Sweden’s military expansion. The industrial revolutions of neighboring countries demanded the iron and forest resources Sweden was endowed with. This demand led to the bolstering of industrial production in former rural areas; such as, the Bergslagen district in the middle of Sweden (ibid, 28). Land was expropriated

from peasants who lived in areas favorable to the iron industry, or iron forging peasants found themselves unable to compete with the government sponsored ironmasters (Rydén 1998, 391). The now landless peasants had no other choice but to enter the workforce of the mines and foundries in these often-isolated geographies (Moore 2010, 214). The 1830s saw the nascency of the Swedish industrial revolution that would bring unprecedented transformation to the nation's socioeconomic configurations.

### **Hop Production Endures**

Grain production became a staple agri-food commodity for profit seeking farmers. The high profit margins obtained from growing grain allowed them to purchase more land. This process led to the decline in home-gardening as more and more of the peasantry was proletarianized. However, small-scale hop production persisted. Sigvard Cederroth (2014) provides valuable ethnographic data of hop production in Sweden during this time. The case of a small farmstead in Ovanby, Uppland shows that hop production was a family project. Techniques were passed down from elders and work was divided amongst family members. For example, the father was responsible for setting up the poles, the children were to water the plants, and the mother harvested the cones to dry. Home consumption consisted of four poles in total (ibid, 295).

While radical land-use changes and agricultural transformations were happening across Sweden in the nineteenth century, hop production was still mandated by the Civic Code of 1734 – the requirement that all fully-taxed farmsteads grow two hundred hop plants. The growing population meant that hopped beer – still a valuable source of nutrition – was in increasing demand (Moir 2000, 133). In response, Swedish agricultural societies imported hop cuttings to keep production going; Saaz became the main variety utilized as opposed to the previously favored Brunswick because of the flavor it imparted (Karlsson Strese et al. 2014, 232). However, because of the agricultural shift towards grain production and the dissolution of the peasantry, hop production dwindled to just a few corners of the country. The law that Christopher of Bavaria had originally started four hundred years earlier that required farmsteads to grow hops was finally dissolved in 1860. With this came the end of significant hop production in Sweden.

During this time, the hopyards of German states and the Austrian Empire were flourishing, with the Hallertau region being the largest hop producing locale, as it remains today. As a result of this, large trading firms began to form and concentrate in these regions. The most influential at the time was the Nuremberg hop-nexus; so much so, that in the nineteenth century it was able to set global market prices on hops (Barth et al. 1994; Kopp 2014, 80; Moir 2000, 133). The next section explores how this concentration of power and capital was established and how it has affected contemporary hop production in Sweden, critically analyzing it through the lens of food regime theory.

## PARADIGM SHIFT TOWARDS GLOBALIZED AGRI-FOOD SYSTEMS

Sweden has had agricultural trade relationships with other countries for centuries, but only since the advent of the Agricultural Revolution, has it been integrating its agricultural industry into the global agri-food economy. The first step was the integration of the Swedish grain market in the beginning of the nineteenth century (Schön 2012, 41). This was brought about by the “commercialisation of agriculture and emergence of new industries [that] reshaped the rules of behaviour and economic relationships, which increasingly clashed with previous customs” (ibid, 65). Once the Swedish grain market was integrated and private ownership rights were fortified, grain production became an industrialized project. The integration of industrialized agricultural markets throughout the world-system determined who produced the crops, where the crops were produced, how they were produced, and why they were produced (OECD 2011, 10). The logic of the market had been shaped by acceptance of the Ricardian (2001[1818]) theory of comparative advantage, which postulates “all economies have trade opportunities to exploit and these opportunities stem from differences in [resource] endowments between countries” (OECD 2011, 3). This became the foundation for the globalization of agri-food systems throughout the world-system. If profit could not be maximized from the production of a certain agri-food commodity given the structure of the country in question, then its production violates the logic of the system and will not be competitive in the market.

The contribution that Sweden has had to the process of globalization is unmistakable. Without the iron and forest resources that were exported to continental Europe during the colonial period, global economies would have been far less integrated (see Hecksher 1954, 93; Moore 2010, 213; Myrdal 2011, 116-117; Wallerstein 1974, 272). However, towards the middle

of the nineteenth century iron exports plummeted and were supplanted by timber and grain exports. Iron fell from constituting one-third of Sweden's total exports to about one-sixth, while the combined export of the aforementioned agricultural commodities increased from one-fifth to almost half of the total (Schön 2012, 47). This bolstering of grain prices was partly due to the repeal of the Corn Laws in England, which opened the English market to international grain production through trade liberalization. Scanian grain became highly marketable (Fridlitzius 1979, 20).<sup>26</sup>

The long process of concentration of labor, land, and capital into but a few industries in Sweden – especially that of grain production – is the main reason for the decline of hop production in the country. The integration into a global agri-food system that is founded on the Ricardian theory of comparative advantage reinforced this decline and continues to this day to be an obstacle for contemporary Swedish hop farmers.<sup>27</sup> This relationship becomes clearer once hop production within the global agri-food system is examined.

### **Hop Production within a Globalized Agri-food System**

By the end of the nineteenth century, Germany held over one-third of the world's hop-growing areas and produced roughly thirty percent of the global stock (Moir 2000, 133). This was the time Sweden ended a four-hundred-year legacy of mandatory hop production, which is not a coincidence. Despite at times having a thriving hop production system, Sweden always needed to supplement domestic demand with German hops. This dependence has continued to this day where Germany accounts for sixty percent of the hops grown in the European Union, while Sweden is no longer considered a hop growing region (Pavlovic and Pavlovic 2012). Using a food regime perspective, the following subsections will discuss how this relationship of dependence was manifested and how the concentration of power and capital came to be controlled by multinational hop trading firms.

Concentration of capital. Hop production in Freising, Germany dates to the ninth century, roughly six hundred years before Christopher of Bavaria – who was from this region – implemented the law obligated farmsteads to produce hops. Evidence of the first hopped beers

---

<sup>26</sup> A comprehensive example of this is outlined on page 273 of Ricardo, D. 2001 [1818]. *On the Principles of Political Economy and Taxes*. Kitchener: Batoche Books.

<sup>27</sup> Interviews: HF2; HF3; HF4

are found in Germany (Behre 1999). Hop production became such a lucrative venture for Germany that investments were made to make Hallertau the largest hop producing locale in the world (Barth et al. 1994; Kopp 2014, 80; Moir 2000, 133).

In Nuremberg, hop trading started around 1400. At this time the hop trade was controlled by a town monopoly. The cultural diffusion of drinking hopped beers spread rapidly during this time due to the Hanseatic League promoting the use of hops as the standard preservative in beer (Kopp 2014, 79). It remained this way until the Thirty Years War, which put significant economic strain on the agricultural sector. However, the German government prioritized the reestablishment of the agricultural sector over all other industries and hop production was revitalized. Land reform and agricultural transformations spurred by the Agricultural Revolution led to a new class of entrepreneurs ready to buy surplus hops from Bavaria's thriving industry (Neve 1991, 228). In the Nuremberg hop-nexus, the intermediary thrived. Various trading firms were established during the eighteenth century as the crop became more economically significant. As capital accumulated in the hands of the trade firms, their political influence grew as well. Due to the unparalleled scale hop production in the region, these entrepreneurial capitalists had the ability to set global market prices on hops (Barth et al. 1994; Kopp 2014, 80; Moir 2000, 133).

Capital mobility. Heading into the twentieth century, two German hop trading firms transcended national boundaries; setting up offices in the burgeoning United Kingdom and Pacific Northwest industries. Not only were these companies dealing in hops, but they expanded longitudinally throughout the industry; owning storage systems and shipping facilities as well as having access to brewers and new crops. The two largest firms were Barth and Sohns from Nuremberg and Steiner from Laupheim.<sup>28</sup> These two firms learned from the industrial capitalists and monopolized a large section of the European hop market. This was facilitated by “government supported hop-breeding programs [that] further helped farmers to produce enough hops to meet rising global beer demands” (Kopp 2014, 84); an example of the state serving the market. The result of this has been the maintenance of Bavaria and the Pacific Northwest as the largest hop producing regions for the last century (Edwardson 1952, 161; Moir 2000, 133). This is evidenced by each covering a third of global hop production, with Barth – along with its American trade partner Haas – and Steiner still being the leading hop trading firms.

---

<sup>28</sup> Website: <https://www.barthhaasgroup.com/en/>; <https://www.hopsteiner.com/>

While not a full-fledged regime, the monopolization and concentration of capital and political power operates in a similar framework. Much like the described Corporate-Environment Regime discussed by food regime theorist, the capitalist logic of global hop production exists at the benefit and profit of a few multinational trade firms. Furthermore, these firms have embedded themselves vertically throughout the chain of production by growing, processing, storing, distributing, and selling hops.<sup>29</sup> The corporatization of hops has in affect pushed many small farmers out of the business not only in the countries where production is concentrated, but peripheral countries where hop production has historical precedence – for example Sweden. (Kopp 2012, 86).

The unrestricted mobility of capital in this paradigm shift towards globalized agri-food systems exposes some shortcomings in the theory of comparative advantage. Ricardo's theory was premised on the existence of the internationalism paradigm and assumed capitalist were also nationalists (Hines 2000, 12). The process of globalization has refuted this assumption. Historically, the concentration of capital and production of hops was in Germany: Bavaria, to be specific. However, the colonial period brought hops to far ends of the globe such as the United States, South Africa, and Oceania. Consolidation of hop production in these areas under the ownership of multinational trading firms has allowed for the mobility of capital. Technological advances in production, processing, storage, and transportation have facilitated this by reducing time investments, despite great geographical distances. Capital can now move more freely across the globe and is more resilient to threats posed by sociopolitical, economic, and environmental changes. For example, during the interwar period of the twentieth century, while hop production declined in Germany and the rest of Europe, the United State exported around 18,000 kilos of hops to Germany. (Edwardson 1952, 174; Moir 2000, 138). Conflict in continental Europe led to heavier investments in the Pacific Northwest hop industry, which grew considerably during this period.

The advent of craft beer and more hop-intensive beer styles has pushed multinational trade firms to search the periphery for hops to meet the growing demand. This is evidenced by the growing number of beers showcasing South African and New Zealand hops (Figure 4). However, the most significant transformation of the global hop industry is the substantial

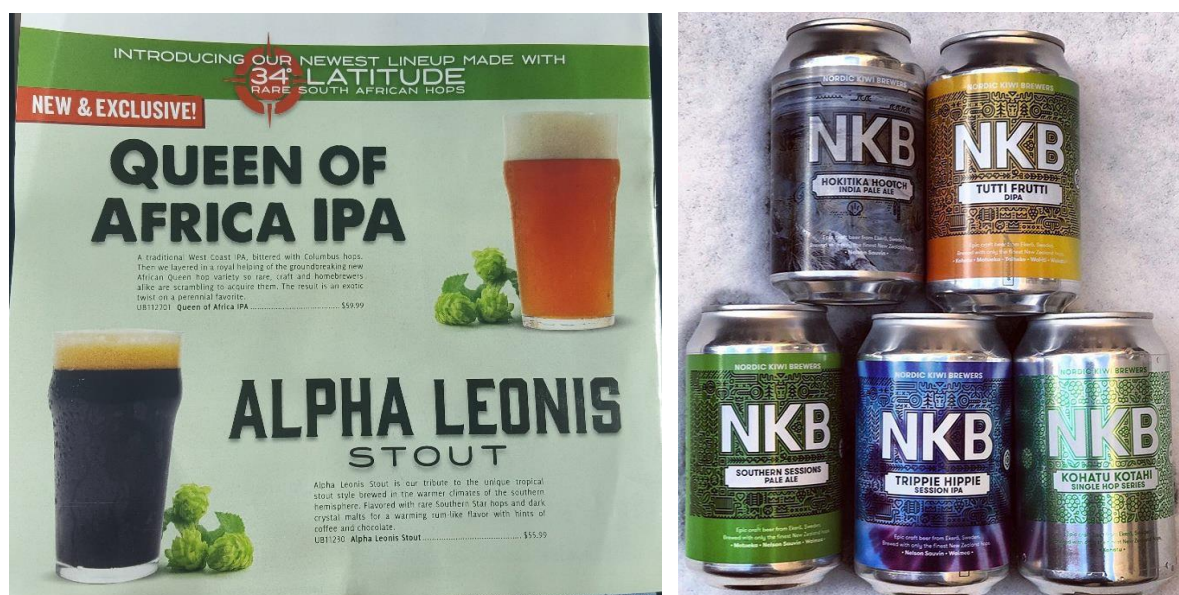
---

<sup>29</sup> Website: <https://www.barthaasgroup.com/en/>; <https://www.hopsteiner.com/>



expansion of hop production in China, which has now “emerged in the twenty-first century as the third largest producer of hops in the world” (Barth et al. 1994, Kopp 2012, 86). It is unsurprising to find that both Barth-Hass and Steiner are involved in this process.<sup>30</sup> China serves a profound portion of the world’s population who have developed a beer drinking culture – with the craft beer movement gaining popularity – and is a source of cheap labor, cheap land, and less restrictive environmental regulations (Kopp 2012, 86; Li 2018). It is almost poetic that hop production would return to the geographical origin of the crop.

Figure 3: Craft beer showcasing hops from periphery countries



The image on the left is an advertisement posted by Northern Brewers, a leading homebrewing and winemaking supplier in the United States. They create brewing recipes that they then sell the kits to make them to homebrewers. The text at the top of the advertisement reads, “Introducing our newest lineup made with 34° latitude rare South African hops.”<sup>31</sup> The image on the right depicts cans of various beer styles brewed by Nordic Kiwi Brewers. The sub-text on each can reads, “Epic craft beer from Ekerö, Sweden, brewed with the finest New Zealand hops.”<sup>32</sup>

## CONTEMPORARY HOP PRODUCTION IN SWEDEN

In 2017, Sweden imported 6.4 million Euros worth of hops and exported seventy-eight thousand Euros worth. Of these imports, fifty-two percent were produced in Germany. In 2000, Sweden’s hop imports totaled one million, of which Germany was responsible for ninety-one percent (Figure 5).<sup>33</sup> The six-fold increase of hop imports is due to the craft beer movement and the opening of over three-hundred breweries in Sweden since 1990.<sup>34</sup> The small amount of

<sup>30</sup> *ibid.*

<sup>31</sup> Left image: Josh. June 15, 2017. The Craft BeerCast. Accessed April 29, 2019: <http://craftbeercast.com/?p=1320>

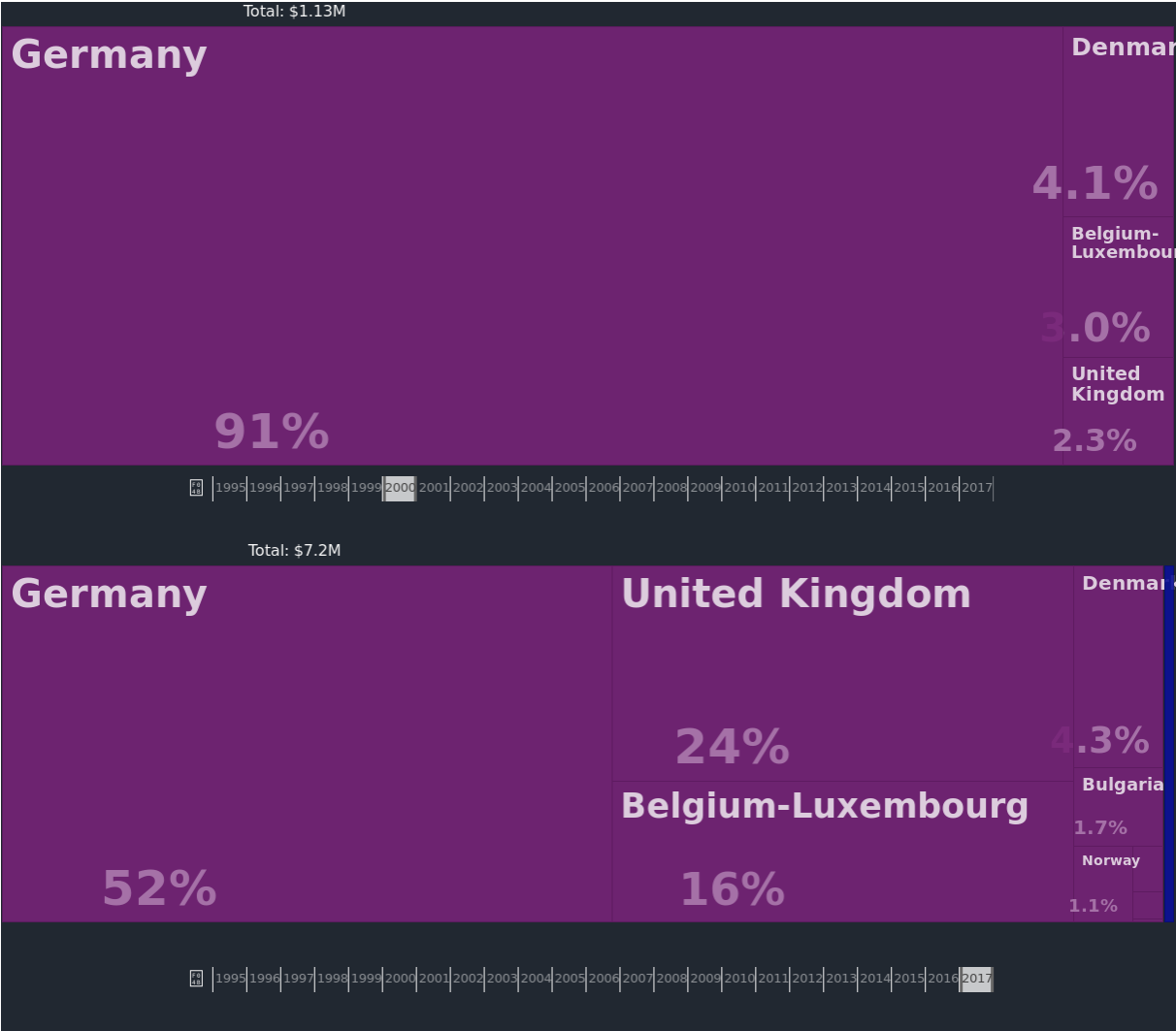
<sup>32</sup> Right image: Nordic Kiwi Brewers. Accessed May 1, 2019: <http://nkbrewers.com/>

<sup>33</sup> OEC

<sup>34</sup> Interview: MB1

production in Sweden comes from a handful of farms that see themselves as pioneers in a movement to localize the hop industry.<sup>35</sup> While Sweden’s hop production has reduced dramatically over the last century, its consumption has grown around twenty percent yearly since 1997 (Tridge 2018). This growth is in part due to the exponential rise of Swedish microbreweries and the advent of hop-concentrated beer styles, such as the India Pale Ale (Simpson 2014).<sup>36</sup> This increase is not only found in Sweden; in fact, the craft beer movement is growing in many countries throughout the world (Hornsey 2003, 503-506). With more breweries opening and each producing hop-intensive beer, the global production cannot meet the demand; leading to shortages of highly sought-after varieties (Simpson 2014).<sup>37</sup>

Figure 4: Visualized data from The Observatory for Economic Complexity: Sweden



<sup>35</sup> Interview: HF1; HF2; HF3; HF4  
<sup>36</sup> Interview: BB1; MB1  
<sup>37</sup> Interview: MB1

The top image is a visualization of hop import data for Sweden from 2000. Total imports equal \$1.13 million (roughly one million euros), where Germany accounts for ninety-one percent. The bottom image is data from 2017. Total imports equal \$7.2 million (roughly 6.4 million euros), where Germany accounts for fifty-two percent.<sup>38</sup>

Hop farmers in Sweden see the industry as just beginning, almost as if it is completely separated from its history.<sup>39</sup> All interviewed farmers started their operations within the past five years.<sup>40</sup> Globalized hop trade has made it impossible to compete with the market price set by the multinational firms, especially given the institutional differences amongst countries regarding agricultural regulations. An example of this is the regulation of copper sulphates in organic production: in Sweden, the use of copper sulphates as a fungicide is not allowed, whereas in Germany, the United States, and China it is.<sup>41</sup> The use of copper sulphates is a comprehensive strategy to protect the plants against hop downy mildew (*Pseudoperonospora humuli*), which decimated hopyards throughout Europe in 1924 (Kopp 2014, 85). However, its use has been criticized as being an environmental pollutant due to the challenge of mitigating copper leeching and spray drift (Pavlovic 2011). The lower environmental regulations in Germany, the United States, and China reinforce the regime-like concentration of capital in hop production.

Instead of relying on technological fixes, hop farmers seek alternatives to set themselves apart within the more regulated agricultural institutions of Sweden. For example, the use of naturalized Swedish hops has become a popular strategy. The most used varieties are Näs (SWE 54) from Uppland, Hulla Norrgård (Swe 4) from Södermanland, and Korsta (SWE 25) from Medelpad.<sup>42</sup> The benefits these naturalized hops have is that they can be harvested earlier, than other varieties.<sup>43</sup> Demand is slowly growing as the reputation of Swedish hops is improving; however, most hops are sold to local brewers or homebrewers. Increasingly, breweries have been showcasing the use of local hops or Swedish naturalized hops (Figure 6). However, most hops consumed in Sweden still come from Germany – whose total hop exports in 2017 were 230 million; although, demand for Pacific Northwest hops is growing amongst craft beer brewers (Figure 7).<sup>44</sup>

---

<sup>38</sup> OEC

<sup>39</sup> Interview: HF2; HF3; HF4

<sup>40</sup> Interview: HF1; HF2; HF3; HF4; HF5

<sup>41</sup> Interview: HF3

<sup>42</sup> Fieldnotes: April 18, 2018; Interview: HF5; NG1

<sup>43</sup> Interview: HF1; HF5

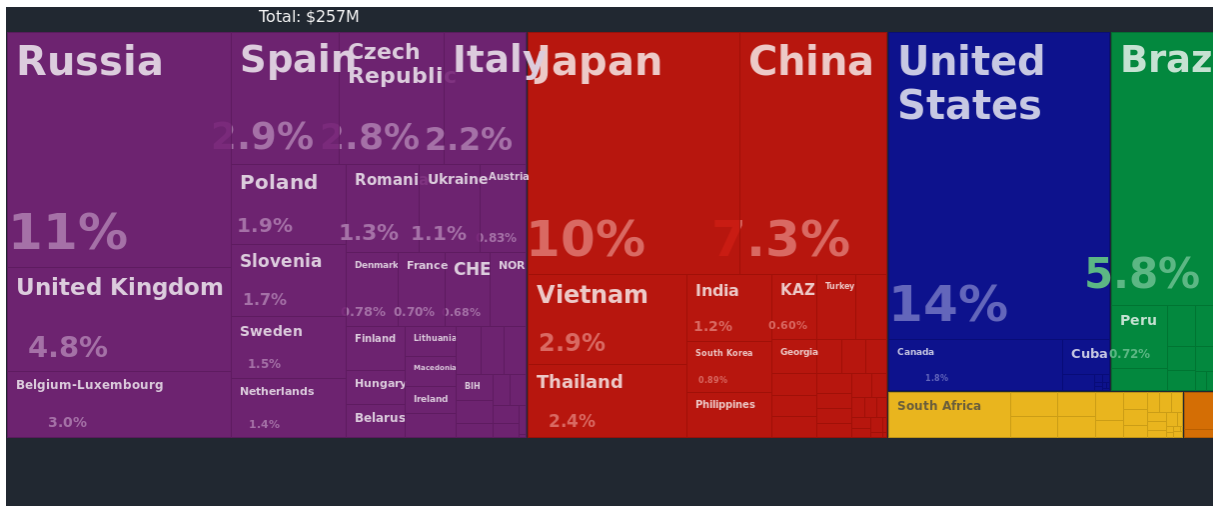
<sup>44</sup> Fieldnotes: April 14, 2019; Interview: BB1; HF5; MB1

Figure 5: Breweries showcasing the use of Swedish hops



The image on the right depicts a beer from Poppels Bryggeri in the wet-hopped style (meaning undried, fresh hops), which came from a Scanian hopyard.<sup>45</sup> The picture on the left is the label for a beer released by Remmarlöv Gårdsbryggeri that reads, “The Local Hops”.<sup>46</sup>

Figure 6: Visualized data from The Observatory for Economic Complexity: Germany



The image is a visualization of hop export data for Germany from 2017. Total exports equal \$257 million (230 million euros), where Sweden accounts for one and half percent.<sup>47</sup>

Research into Swedish naturalized hop varieties is increasing (Karlsson Strese et al. 2014).<sup>48</sup> These research programs are reminiscent of the hop breeding program started in Svalof in the 1940s (Neve 1991, 197). In Scania, The National Gene Bank currently has around 60 cultivars growing in their hopyard that they are testing for market reintroduction.<sup>49</sup>

<sup>45</sup> Left image: Poppels Bryggeri. November 6, 2018. Accessed May 14, 2019: <https://www.facebook.com/PoppelsBryggeri/photos/a.238487306289772/1195633427241817/?type=3&theater>

<sup>46</sup> Right image: Remmarlöv Gårdsbryggeri. Accessed May 14, 2019: <https://www.remmarlov.se/>.

<sup>47</sup> OEC

<sup>48</sup> Interview: NG1

<sup>49</sup> *ibid.*

When asked about what could be improved in the Swedish hop industry, the consensus among the interviewed hop farmers was better integration within the chain of production and investment in better technology; for example, a machine that turns dried hop cones into pellets; increasing their longevity.<sup>50</sup> Other suggestions were consultation services and the ability to perform analyses on the hops to improve quality. Many of these suggestions are geared towards improving the efficiency of the farm and are not surprising given the nascency of the industry. Several hop farmers expressed the need for improving the relationships among farmers and with brewers.<sup>51</sup> Relationship between farmers could be bolstered by sharing expensive machinery, creating an agreed upon framework for pricing, and more experimentation with naturalized varieties. Communication and education of the particularities of Swedish hop production needs to strengthen between farmers and brewers. For example, brewers request hop varieties that are patented by multinational trade firms; thus, Swedish hop farmers cannot provide them – yet another obstacle faced by small-scale produces in globalized agri-food systems. To ameliorate this, farmers and brewer should hold workshops where the experiment with the stock available to find comparable substitutes or invent new styles altogether.

Despite the concentration of hop production in Germany and the United States – and the expanding shadow of China, alternatives to the regime-like logic exist for Swedish hop production. Economic localization of hop production is one such alternative. The next chapter of this research is a case study analysis of Byhumle, an urban hop farm located in Copenhagen, and how it is an example of economic localization as a possible approach to hop production within a Scandinavian context.

## IV

### BYHUMLE

It was a brisk Copenhagen spring evening when I first visited Byhumle. At the time, it looked like an empty parking lot. The black fifty-liter planters packed full of soil appeared desolate, although housing the hibernating hop rhizomes. I was greeted by a long-time contributor of the farm. They explained to me that Byhumle was a project within the company Out of Office Architecture. The purpose of the meeting was to vote whether Byhumle would

---

<sup>50</sup> Interview: HF1; HF2; HF3; HF5; NG1

<sup>51</sup> Interview: HF5

become an organization in its own right or remain part of the company. The outcome of this vote was to establish Byhumle as a volunteer organization and be run by an elected board. Membership within the organization was also voted to be open to the public and free. The meeting was held in English because there were Anglophones present, which was of significant help considering my language limitations. During the meeting, we were treated to a summary of the history of the farm, the direction envisioned by the co-founders, and the goals for the coming season.<sup>52</sup>

By my last visit about a month and a half later, the farm had made tremendous progress. It was almost unrecognizable. It is astonishing to think that what seemed like barren containers could house and facilitate such exuberant growth. Under optimal conditions hops can grow up to thirty centimeters a day (Eyck and Gehring 2015, 31). The transformation from asphalt wasteland to verdant garden was well underway. It became apparent why landscape architects wanting a vigorous plant to green up urban space chose to become hop farmers. The community seems thrilled about the new green space as well, stopping to ask questions, take pictures, and express gratitude.<sup>53</sup>

What has been emphasized through my observations and communications with the stakeholders of Byhumle is the sense of community. Byhumle is a communal experiment that greens the urban space, reinvigorates a cultural heritage, and localizes the production of hops in a metropolis that is famous for craft beer. This effort at localization was particularly interesting for me. Byhumle was chosen to demonstrate a case of a production system that has defied the capitalist logic of the global hop industry. The following subsections illustrate how Byhumle can be understood as economic localization in practice and how it represents a return to small-scale, local hop production in a Scandinavian context.

### **Hop Production in a Scandinavian Context**

The shared histories of the Scandinavian countries regarding hop production are in part due to geography, social and political overlap, and cultural diffusion. As has been mentioned previously, macrofossil hop pollen has been discovered in Iron Age Viking sites throughout Scandinavia (Behre 1999; Heimdahl 1999; Lagerås 2003; Sloth et al. 2012). The presence of

---

<sup>52</sup> Fieldnotes: March 28, 2019

<sup>53</sup> Fieldnotes: May 17, 2019

hops in this part of the world far transcends the existence of current sociopolitical borders. When Christopher of Bavaria signed into law that every farmstead was required to grow forty hop plants, this was not just for Sweden, it was for Denmark and Norway as well. Christopher of Bavaria reigned over the three countries for only five years, but the impact he made in terms of hop production lasted for centuries. For example, similar obligations of hop production persisted. Leading up the seventeenth century, hops were grown in Scania before and after it was ceded by the Swedes.<sup>54</sup> The decline of hop production in the nineteenth century was similar in all the Scandinavian countries. Solberg et al. (2014, 53-54) claim that the “centralisation of breweries and the importation of cheaper hops from Germany” caused this decline in Denmark, which resulted in “hop production [falling] from 1103 ha in 1881 to 200 ha only 20 years later, before almost disappearing in the twentieth century”.

While it is important to be wary of generalizations, which risk downplaying the diversity that exists among the Scandinavian countries, it is my conviction that Byhumle is relatable not just to the Danish experience, but the Swedish as well.

## **The Farm**

Byhumle is the Danish word for “City Hops”, which is a perfectly apt name for an urban hop farm. The farm is located within an old parking lot, that has been rebranded and reconceptualized as a green urban space. The name of this space is Garage Park NV.<sup>55</sup> The farm was started in 2015 as a landscape architecture project aiming to green an urban space quickly with a crop that could also be useful. At the time, the co-founders started with roughly fifty plants. After four years of production, the farm now cultivates four hundred plants representing thirteen varieties. The members hope that by next season they will have around five hundred plants to care for. (Figure 8)<sup>56</sup>

---

<sup>54</sup> Fieldnotes: September 24, 2018

<sup>55</sup> Fieldnotes: March 28, 2019

<sup>56</sup> Fieldnotes: April 17, 2019; Interview: BH1

Figure 7: Layout of Byhumle



Both pictures give a feel for the layout of Byhumle. Each hop plant is housed in one fifty-liter planter.<sup>57</sup>

The farm is run by volunteers from the community and a democratically elected board, but there are no full-time employees. Volunteers come from various backgrounds such as gardeners, students, homebrewers, and passers-by.<sup>58</sup> It is an open space for the community to enjoy, as long as the gates to Garage Park NV are open. Through negotiations and the support of the park's owner, the farm does not have to pay lease for the first two years. This was of great help given the costs of having to move the entire operation.<sup>59</sup>

Aside from selling hop cones to brewers, Byhumle has also opened Garage Bar in the same space. The goal is to host afterwork pub hours for the community to come and enjoy the new green space, learn about the farm, and sign up to become members or volunteers. The bar sells craft beer, hop cones, and hop cuttings that can be replanted (Figure 9).

The farm practices organic methods and emphasizes sustainability. For example, it regularly uses recycled materials. If items can be reused from the previous season it is done with enthusiasm. Another example is the use of locally sourced fertilizer from rural areas outside of Copenhagen, which contributes to the argument of Byhumle being an example of economic localization.

---

<sup>57</sup> Photographed by author

<sup>58</sup> Fieldnotes: March 28, 2019; March 31, 2019

<sup>59</sup> Interview: BH1



Figure 8: Garage Bar by Byhumle



Pictured here are two board members showing off the bar's selection of hops and craft beer.<sup>60</sup>

## Economic Localization as Praxis

Chapter V of this thesis detailed the accumulation of capital and power in multinational hop trading firms. This has manifested due to a paradigm shift towards globalized agri-food systems that is premised on the Ricardian theory of comparative advantage. Accordingly, hop production in the Scandinavian context has declined due to various circumstances that allow profit-maximization to be realized in other countries such as: Germany, the United States, and China. In Sweden, this decline was facilitated by the historical processes of land enclosures, the depopulation of the peasantry, and the corporatization of global hop production; which are the manifestation of “the key social relational bases of capitalism—‘primitive accumulation’, the alienability of land, and market dependence” (Tilzey 2017, 4). Thus, for hop production to thrive in the Scandinavian countries, it must follow an alternative logic. Economic localization – the production, distribution, and consumption of a commodity within a community – provides an approach to achieve this, as “emphasis on and support for sustainability of production and consumption, the development of local communities, democratic decision-making, strengthening local economies and self-reliance, and building relationships to place” are integral to its realization (Frankova and Johanisova 2012, 317-318).

<sup>60</sup> Byhumle. May 20, 2019. Accessed May 20, 2019: <https://www.facebook.com/byhumle/photos/gm.662808374178540/2347938082119819/?type=3&theater>

Economic localization does not suggest a dichotomy of the local and the global, “us” and “them”, the community and “the other”; nor does it imply utter isolation from the workings of the world. As Michael Shuman (1998, 6) asserts in his book, *Going Local: Creating Self-Reliant Communities in a Global Age*, economic localization:

“does not mean walling off the outside world. It means nurturing locally owned businesses which use local resources sustainably, employ local workers at decent wages and serve primarily local consumers. It means becoming more self-sufficient, and less dependent on imports. Control moves from the boardrooms of distant corporations and back to the community where it belongs.”

This emphasis on control returning to communities contradicts the global paradigm. The struggles faced by Swedish hop farmers are like those affecting Byhumle: inability to compete with market prices, limited access to processing technology, and lack of institutional support. Instead of operating within the same logic of global hop production, Swedish hop farmers and Byhumle pursue more localized approaches – albeit the Swedish hop farmers are still very much profit-oriented.<sup>61</sup>

Selling hops to local breweries and homebrewers is the primary method the Swedish hop farmers and Byhumle move their product; however, some Swedish hop farmers sold the hops to third-party homebrewing stores and hop distributors, resulting in their hops being sold to craft breweries in France.<sup>62</sup> Byhumle on the other hand, sells their hops directly to brewers, homebrewers, and the community – here “the community” refers to those who use hops for purposes outside of brewing such as: decorative plants, teas, or salves.<sup>63</sup> They have a set principle of selling exclusively to Copenhagen breweries, usually to those located within the same district as the farm. For example, in 2017 Byhumle was in Carlsbergs Byen in central Copenhagen, that year they sold a portion of their hops to Warpigs; a brewpub just two kilometers away. This year they intend to sell a portion there hops to Flying Couch Brewery located just 800 meters away. The benefit of such hyper-localized hop production means that these craft breweries can use fresh hops in their beers; which impart a distinct and intense flavor profile as opposed to preserved hops.<sup>64</sup> Ordinarily, this type of beer-making would be

---

<sup>61</sup> Interview: HF3; HF4

<sup>62</sup> Interview: BB1; HF1; HF2; HF4; HF5

<sup>63</sup> Fieldwork: May 17, 2019

<sup>64</sup> Interview: BH1; MB1

impossible without the local production. The added benefit of these relationship is the removal of brokers or intermediators. The economic relationship is direct between farmer and brewer.

Byhumle's previous location in Carlsberg Byen was not only beneficial for its proximity to craft breweries, but also that it used to be the former brewing facilities of J. C. Jacobsen; brewer of the multinational Carlsberg brand. In the late nineteenth century, Jacobsen opened the Carlsberg Laboratory aimed at the research of hops in an attempt to preserve Danish hop heritage.<sup>65</sup> These Danish naturalized hop varieties can still be found growing on the buildings in the area (Figure 10). Byhumle has since cultivated some of these varieties and can now offer a product that embodies their localized philosophy.

Figure 9: Naturalized Danish hops



Both pictures depict naturalized Danish hop varieties that are cultivated at Byhumle. The left picture shows a variety called Winge 1, named after the hop breeder at Carlsberg Laboratory. The right picture shows a variety called Carlsberg named after the neighborhood in which it was found.<sup>66</sup>

During the opening of the farm, members of Byhumle held tours for the community to experience and learn about hop cultivation. The premise of the farm was well-received, with new members signing on to help during the rest of the season. The restoration of the relationship between community and farmers is an essential part of the economic localization, as it breaks away from the alienation imposed by globalized agri-food systems (Pretty 2001). In this way, hops from Byhumle are embedded with a community identity in that they come from somewhere that is known rather than somewhere unknown.

---

<sup>65</sup> Interview: BH1

<sup>66</sup> Photographed by author

While the scale of Byhumle's production is marginal relative to the number of hops required to make Copenhagen's craft beer industry self-sufficient, it does create a pool of local capital circulation (e.g. hops, money, fertilizer, and beer) that strengthens the local economy. Figure 11 demonstrates how this is accomplished by illustrating the flow of hops as raw material to local breweries, the community, and homebrewers. As hops flow out of Byhumle through sales, money is brought in to reinvest into the farm, buy necessary supplies such as organic fertilizer, and potentially split among the members and board. Once hops have been used by the local breweries, spent grains and trub – a thick sediment composed of organic waste including hops – is sold to farmers in the rural area around Copenhagen as a low-cost feed.<sup>67</sup> In some farmer-brewer relationships, the spent material is given for free if the farmer collects it from the brewing facility; saving the brewer the cost of waste removal.<sup>68</sup>

In Garage Park NV, there is a company that raises crickets for human consumption. There is currently talks of organizing a relationship between the cricket farm, Byhumle, and a local brewery; where the hops would go to the brewery to make beer, the spent organic matter would be sent as feed to the cricket farm, and the organic waste from the crickets would fertilize the hop plants.<sup>69</sup> While not a realized plan, the motivation to accomplish this near-circular flow of capital is counter to the logic presented by the global hop industry, as it does not maximize profit. Instead, it prioritizes social and ecological sustainability. Nonetheless, the current system of organic matter going to rural farms and Byhumle purchasing the waste generated from the livestock as fertilizer creates a circular flow of capital. While Figure 11 does not take into consideration capital flows from other sources such as rent, public water utility, income from the sale of livestock, its aim is to demonstrate the circular flow of capital within these specific relationships. In sum, the relationship between Byhumle and these local agents creates a localized near-circular flow of capital that is counter to the capitalist logic of profit-maximalization; instead, promoting social and economic cohesion.

---

<sup>67</sup> Interview: BH1

<sup>68</sup> Interview: MB1

<sup>69</sup> Fieldnotes: April 17, 2019

Figure 10: Diagram representing the circular flow of capital.

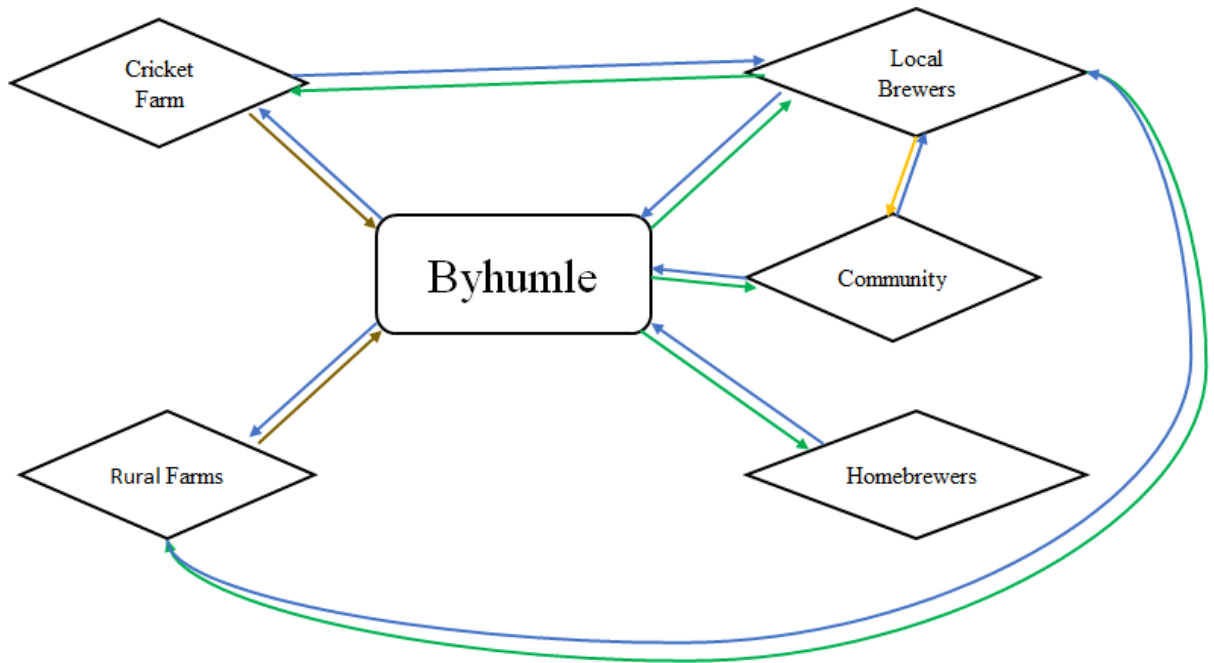


Diagram representing the circular flow of capital between Byhumle and other local agents. The green signifies the flow of hops; blue signifies the flow of money; brown signifies the flow of fertilizer; and yellow signifies the flow of beer.

While this pooling of local capital exists at a marginal scale, it is my conviction that this type of production system can exist in other Scandinavian metropolises. In addition, while it has little impact to the overall global hop industry, Byhumle sets a precedence of following alternative approaches to hop production. Often grassroots movements seem insignificant in comparison to the large-scale institutions they wish to change; however, they can serve as an inspiration for other like-minded movements and organizations to resist the capitalist logic of globalization. As local histories, environments, and production systems are increasingly dissolved or subsumed into globalized systems, those who challenge the process must be given a platform.

## V

## CONCLUSION

This study has used a critical agrarian study approach to examine the historical-political processes that resulted in the decline of Swedish hop production, despite centuries of royal mandates. Through a Marxian lens, this study has shown that the decline of Swedish hop production was facilitated by land enclosures, the depopulation of the peasantry, and the corporatization of global hop production. These processes mirror the foundational social

relations of capitalism – primitive accumulation, the alienability of land, and market dependence (Tilzey 2017, 4). The low-levels of Swedish hop production are reinforced by the paradigm shift toward globalized agri-food systems; namely, due to the existence of other hop producing locales throughout the world-system that are better suited to the capitalist logic of profit-maximization; such as, Germany, the United States, and China. In order to revitalize Swedish hop production, and Scandinavian hop production in general, an alternative approach must be undertaken.

Economic localization of the Swedish hop industry is an example of how this can be achieved. The radical urban hop farm, Byhumle, showcases economic localization as a practical confrontation to the capitalist logic of globalized hop production in a Scandinavian context. The near-circular flows of capital between Byhumle and other local agents supports this.

To my knowledge, critical research into how or why the decline of Swedish hop production occurred has not been undertaken. This study has addressed the gap in the literature by providing a critical agrarian history of Swedish agricultural transformations and their relation to hop production. It also contributes to the topic of Swedish hop production by being accessible to the Anglophone community. In this way, Anglophone readers can learn about the rich history of hop production in Sweden that would otherwise be found written in Swedish. Furthermore, the case study of Byhumle demonstrates that economic localization is practical beyond academia and an alternative approach to the capitalist logic of the global hop industry.

### **Suggestions for Further Research**

While the study has taken steps to provide a critical historical overview of Swedish hop production, the agricultural and social transformations discussed in this paper are but a few examples of a complex socioeconomic upheaval that took place in between fifteenth- and nineteenth-century Sweden. While these examples are not comprehensive, they are processes that had tangible impact on the way hops were produced in the country. A rigorous and thorough exploration of Sweden's economic history as it relates to hop production would undoubtedly be a rewarding and important venture. For example, this topic could be bolstered by exploring the effect wide-scale emigration to the United States at the end of the nineteenth century had on Swedish hop production. However, the scope of this thesis does not allow for such in-depth research; thus, very specific processes and moments were highlighted.

A further compelling argument for economic localization could possibly be gained from analyzing global hop production through a socio-metabolic perspective. In this way, life cycle analysis could be used to compare the transformation of exergy and matter within the global hop industry with that of a localized industry – for example, Byhumle. This could be a rewarding addition to the political ecology influence of this study.

Anglophone literature rarely mentions the Nuremberg hop-nexus and the role it played for concentrating wealth and capital tied to hop production globally. The exploration of the intricacies of this industry could result in a thesis of its own. I encourage the German-speaking community who is interested in this topic to explore the history of hop production in the Nuremberg region as well as the social-political transformations that facilitated the concentration of capital into a few hop trading firms.

Finally, a study of gender and hop production would be lucrative in understanding societal divisions of labor. Hop cultivation was a family endeavor that was typically divided between genders. However, one can imagine that in times of war or the early years of proletarianization, women would have taken on more responsibility in terms of production.

## **Final Words**

While hop production in Sweden may not be the robust industry it once was, there are a few pioneers who have taken it upon themselves to revitalize the practice. With the advent of craft beer and production of hop-intensive beer styles, the demand for hops has seen unprecedented growth. In Sweden, hop consumption has grown by twenty percent annually since 1997, and the price of Swedish hop imports has increased six-fold since 2000. These trends show no signs of letting up, which places Sweden in a precarious position; either continue to rely on foreign production systems or take steps to localize the hop industry. This can be accomplished by drawing inspiration from radical approaches such as those undertaken by Byhumle. The cohesiveness between local agents must improve as well. As one Swedish hop farmer expressed, “Brewers and hop farmers should be best friends.” After a long-drawn hiatus, it seems as if Swedish hop production has entered a new era, and much like the hop plant in the old Ovanby saying, it has come back again.





## REFERENCES

- Aglietta, M. (1979). *A Theory of Capitalist Regulation*. London: New Left Books.
- Barth, H. J., Kinke, C., and Schmidt, C. 1994. *The Hop Atlas*. Nuremberg: Joh. Barth & Sohn.
- Behre, K. 1999. "The History of Beer Additives in Europe - A Review". *Vegetation History and Archaeobotany* 8:35-48.
- Bowen, G. A. 2009. "Document Analysis as a Qualitative Research Method". *Qualitative Research Journal* 9(2): 27-40.
- Bryman, A. 2012. *Social Research Methods*. New York: Oxford University.
- Cederroth, S. 2014. *Bondsagan*. I. A. Flygare and B. Björnemalm (eds). Uppsala: Kungl. Gustav Adolfs Akademien för Svensk Folkkultur.
- Coles, W. 1657. *Adam in Eden: or, Natures Paradise: The History of Plants, Fruits, Herbs and Flowers*. London: J. Streater.
- Cradock, T.M. 1841. *The Farm and the Garden: An Account of Every Vegetable Production Cultivated for the Table, by the Plough and the Spade*. London: G. Woodfall and Son.
- Davis, D. K. 2015. "Historical Approaches to Political Ecology". In *The Routledge Handbook of Political Ecology*. T. Perreault, G. Bridge, and J. McCarthy (eds). London: Routledge.
- Edelman, M., and W. Wolford. 2017. "Introduction: Critical Agrarian Studies in Theory and Practice". *Antipode* 49(4): 959–976.
- Edwardson, J. R. 1952. "Hops: Their Botany, History, Production and Utilization". *Economic Botany* 6(2): 160-175.
- Ericksen, P. J. 2007. "Conceptualizing Food Systems for Global Environmental Change Research". *Global Environmental Change*: 1-12.
- Eyck, L. T. and D. Gehring. 2015. *The Hop Grower's Handbook: The Essential Guide for Sustainable, Small-scale Production for Home and Market*. White River, Vermont: Chelsea Green.
- Frankova, E. and N. Johannisova. 2012. "Economic Localization Revisited". *Environmental Policy and Governance* 22: 307-321.
- Frankova, E., Simron, W. H., and Singh, J. 2017. *Socio-metabolic Perspectives on the Sustainability of Local Food Systems: Insights for Science, Policy and Practice*. Human-Environment Interactions 7. Cham, Switzerland: Springer International Publishing.
- Fridlitzius, G. 1979. "Population, Enclosure and Property Rights". *Economy and History* 22(1): 3-37.

- Friedmann, H. 2005. "From Colonialism to Green Capitalism: Social Movements and Emergence of Food Regimes". In Frederick H. Buttel and Philip McMichael (ed.) *New Direction in the Sociology of Global Development*. Research in Rural Sociology and Development 11. Yorkshire: Emerald Group: 227-264.
- Friedmann, H. and P. McMichael. 1989. "Agriculture and the State System: The Rise and Fall of State Agricultures, 1870 to the Present". *Sociologia Ruralis* 29(2): 93-117.
- Harvey, D. 2017. *Marx, Capital, and the Madness of Economic Reason*. London: Profile Books.
- Heckscher, E. F. 1954. *An Economic History of Sweden*. Cambridge, MA: Harvard University Press.
- Hehn, V. 1885. *The Wanderings of Plants and Animals from Their First Home*. J. S. Stallybrass (ed). London: Swan Sonnenschein and Co.
- Heimdahl, J. 1999. "Växtmakrofossil som Indikerar på Vikingatida Landskapsnyttjande på Björkö. *Quaternaria B* 17:29.
- Hines, C. 2000. *Localization: A Global Manifesto*. London: Earthscan.
- Hoefler, R. 2011. *Policy Creation and Evaluation: Understanding Welfare Reform in the United States*. Oxford: Oxford University Press.
- Hornsey, I. S. 2003. *A History of Beer and Brewing*. Cambridge: The Royal Society of Chemistry.
- Howell, M., and W. Prevenier. 2001. *From Reliable Sources: An Introduction to Historical Methods*. Ithaca, NY: Cornell University Press.
- Iphofen, R. 2013. "Research Ethics in Ethnography/Anthropology". European Commission.
- Karlsson Strese, E., M. Lundström, J. Hagenblad, and M. W. Leino. 2014. "Genetic Diversity in Remnant Swedish Hop (*Humulus lupulus* L.) Yards from the 15th to 18th Century". *Economic Botany* 68(3): 231-245.
- Karlsson Strese, E. and C. Tollin. 2015. *Humle: Det Gröna Guld*. Stockholm: Nordiska Museets Förlag.
- Kennedy, C. 2016. "Climate and Beer". *National Ocean and Atmospheric Administration*. Retrieved from <https://www.climate.gov/news-features/climate-and/climate-beer>.
- Kopp, P. A. 2014. "The Global Hop: An Agricultural Overview of the Brewer's Gold". In *The Geography of Beer: Regions, Environment, and Societies*. M. Patterson and N. Hoalst-Pullen (eds). Berlin: Springer Science and Business Media: 77-88.
- Kvale, S. 2007. *Doing Interviews*. London: Sage.
- Lagerås, P. 2003. "Aristokraten i Landskapet. Paleoekologiska Studier I Järrestads Järnålder". In *Järrestad. Skrifter 51*. Söderberg B (ed). Riksantikvarieämbetet: 243-270.

- Li, F., Y. Shi, M. Boswell, and S. Rozelle. 2018. "Craft Beer in China". In *Economic Perspectives on Craft Beer: A Revolution in the Global Beer Industry*. C. Garavaglia and J. Swinnen (eds). Basingstoke, UK: Palgrave Macmillan: 457-484.
- Lundberg, P. 1763. *Then Rätta Swenska Trägårds-praxis, eller Kort Underrättelse Huru Kiöks-trä- örter och Lust-gårdar Tillika med Orangerier samt Humle-gårdar böra Anläggas, Skiötas och Conserveras, Sammanskrefwen och med Kongl. Maj:ts Allernådigste Privilegio*. Västerås: Joh. Laur. Hornn.
- Madison, D. S. 2012. *Critical Ethnography: Method, Ethics, and Performance*. Thousand Oaks: Sage.
- Magnusson, L. 2000. *An Economic History of Sweden*. London: Routledge.
- Malm, A. 2018. *The Progress of This Storm: Nature and Society in a Warming World*. London: Verso.
- Martin, M. and M. Brandão. 2017. "Evaluating the Environmental Consequences of Swedish Food Consumption and Dietary Choices". *Sustainability* 9(2227): 1-21.
- Marx, K. n.d. [1867]. *Capital: A Critique of Political Economy. Volume I: The Process of Capitalist Production*. F. Engels (ed). S. Moore and E. Aveling (trans). Carmel, IN: Liberty Fund.
- Mathevet, R., N. L. Peluso, A. Couespel, and P. Robbins. 2015. "Using Historical Political Ecology to Understand the Present: Water, Reeds, and Biodiversity in the Camargue Biosphere Reserve, Southern France". *Ecology and Society* 20(4):17.
- McMichael, P. 2005. "Global Development and the Corporate Food Regime". In Frederick H. Buttel and Philip McMichael (ed.) *New Direction in the Sociology of Global Development*. Research in Rural Sociology and Development 11. Yorkshire: Emerald Group: 265-299.
- McMichael, P. 2013. *Food Regimes and Agrarian Questions*. Agrarian Change and Peasant Studies 2. Halifax: Fernwood.
- McNabb, D. 2015. *Research Methods for Political Science: Quantitative and Qualitative Methods*. London: Routledge.
- Meho, L. I. 2006. "E-Mail Interviewing in Qualitative Research: A Methodological Discussion". *Journal of the American Society for Information Science and technology* 57(10): 1284-1295.
- Mintz, S. W. 1985. *Sweetness and Power: The Place of Sugar in Modern History*. New York: Viking Press.
- Moir, M. 2000. "Hops – A Millennium Review" *Journal of the American Society of Brewing Chemists* 58:4: 131-146.

- Moore, J. W. 2010. “‘Amsterdam is Standing on Norway’ Part II: The Global North Atlantic in the Ecological Revolution of the Long Seventeenth Century”. *Journal of Agrarian Change* 10(2):188–227.
- Murakami, A., P. Darby, B. Javornik, M.S. Pais, E. Seigner, A. Lutz, P. Svoboda. 2006. “Molecular Phylogeny of Wild Hops, *Humulus lupulus* L”. *Heredity* 97(1): 66-74.
- Myrdal, J. 2007. “Food, War, and Crisis: The Seventeenth Century Swedish Empire”. In *Rethinking Environmental History: World-system History and Global Environmental Change*. A. Hornborg, J. R. McNeill, and J. Martinez-Alier (eds). Lanham, MD: Alta-Mira Press: 79-99.
- Myrdal, J. 2011. “The Agricultural Revolution in Sweden, 1700–1870”. In *The Agrarian History of Sweden 4000 BC to AD 2000*. J. Myrdal. and M. Morrel (eds). Lund: Nordic Academic Press: 72-117.
- Neve, R. A. 1991. *Hops*. Berlin: Springer Science and Business Media.
- Nilsson, P. 2011. “Maps, Hops and War”. In *Bebyggelsehistorisk Tidskrift* 61. A. Ahrland and A. Björklund (eds), K. and R. Tanner (trans): 9-12.
- OECD. 2011. *Globalisation, Comparative Advantage and the Changing Dynamics of Trade*. Paris: OECD Publishing.
- Offen, K. 2004. “Historical Political Ecology: An Introduction”. *Historical Geography* 32: 19-42.
- Olsson, M. and P. Svensson. 2010. “Agricultural Growth and Institutions: Sweden, 1700–1860”. *European Review of Economic History* 14(2): 275–304.
- Parkinson, J. 1640. *Theatrum Botanicum*. London: Tho. Cotes.
- Pavlovic, M. 2011. “A Review of Agribusiness Copper Use Effects on Environment.” *Bulgarian Journal of Agricultural Science* 17(4): 491-500.
- Pavlovic, M. and V. Pavlovic. 2012. “Market Supply of Hops for the Global Brewing Industry in the Third Millennium”. *Hop Bulletin* 19: 27-37.
- Polanyi, K. 2001 [1944]. *Great Transformation: The Political and Economic Origins of Our Time*. Boston: Beacon Press.
- Pretty, J. 2001. “Saving Our Small Farms and Rural Communities”. In *The Case Against the Global Economy: And for a Turn Towards Localization*. J. Mander and E. Goldsmith (eds). New York: Earthscan: No pages given.
- Ricardo, D. 2001 [1818]. *On the Principles of Political Economy and Taxes*. Kitchener: Batoche Books.
- Riksdagen. 1840. *Sveriges Rikes Lag: Gillad och Antagen på Riksdagen åhr 1734*. Stockholm: Norstedt och Güners Förlag.

- Rydén, G. 1998. "Skill and Technical Change in the Swedish Iron Industry, 1750-1860". *Technology and Culture* 39(3): 383-407.
- Schön, L. 2012. *An Economic History of Modern Sweden*. London: Routledge.
- Scott, F. D. 1988. *Sweden: The Nation's History*. Dunquin Series 17. Carbondale, IL: SIU Press.
- Shuman, M. 1998. *Going Local: Creating Self-Reliant Communities in a Global Age*. New York: Free Press.
- Simpson, P. 2014. "Hop Deficit Threatens Swedish Hipster Beer". *The Local*.  
<https://www.thelocal.se/20140520/swedish-hipsters-threatened-by-hops-shortage>.  
 Accessed April 20, 2018.
- Sloth, P., U. L. Hansen, and S. Karg. 2012. "Viking Age Garden Plants from Southern Scandinavia – Diversity, Taphonomy and Cultural Aspects". *Danish Journal of Archaeology* 1(1), 27-38.
- Solberg, S. Ø., A. K. Brantestam, M. Kylin, G. K. Bjørn, and M. G. Thomsen J. 2014. "Genetic Variation in Danish and Norwegian Germplasm Collections of Hops". *Biochemical Systematics and Ecology*. 52: 53-59.
- Tello, E. and M. G. de Molina. 2017. "Methodological Challenges and General Criteria for Assessing and Designing Local Sustainable Agri-Food Systems: A Socio-Ecological Approach at Landscape Level". In *Socio-metabolic Perspectives on the Sustainability of Local Food Systems: Insights for Science, Policy and Practice*. Human-Environment Interactions 7. E. Frankova, W.H. Simron, and J. Singh (eds) Cham, Switzerland: Springer International Publishing: 27-68.
- Thomas, J. 1993. *Qualitative Research Methods: Doing Critical Ethnography*. Newbury Park, CA: SAGE Publications, Inc.
- Tilley, L., A. Kumar, and T. Cowan. 2017. "Introduction: Enclosures and Discontents". *City* 21(3-4): 420-427.
- Tilzey, M. 2017. *Political Ecology, Food Regimes, and Food Sovereignty: Crises, Resistance, and Resilience*. London: Palgrave MacMillan.
- Tollin, Clas. 2011. "The Transition of Landownership in Sweden 1562-1654 and its Reflection in the Agrarian Landscape". In *Bebyggelsehistorisk Tidskrift* 61. A. Ahrlund and A. Björklund (eds), K. and R. Tanner (trans): 39-52.
- Tollin, C. and E. Karlsson Strese. 2007. "Humlen. Nordupplands Karaktärsväxt". In *Arkeologi E4 Uppland*. E. Härthner-Holder, H. Ranhed, and A. Seiler (eds). Uppsala: Riksantikvarieämbetet UV GA: 685-696.
- Tridge. 2018. *Hop-Sweden*. Retrieved from <https://www.tridge.com/intelligences/hop/SE/import>.

- Ventresca, M. J. and J. W. Mohr. 2002. "Archival Research Methods" *In The Blackwell Companion to Organizations*. J. A. C. Baum: 805-828. Oxford: Blackwell.
- Wallerstein, I. 1974. *The Modern World-System I: Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century*. New York: Academic Press.
- Wallerstein, I. 2004. *World-systems Analysis: An Introduction*. London: Duke University Press.
- Wilson, J. M. 1848. *The Rural Cyclopaedia: Or a General Dictionary of Agriculture, and of the Arts, Sciences, Instruments, and Practice, Necessary to the Farmer, Stockfarmer, Gardener, Forester, Landsteward, Farrier, &c. Volume II*. Edinburgh: A. Fullarton and Co.
- Wolf, E. 2010 [1982]. *Europe and the People without History*. Berkeley: University of California Press.
- von Wuehlisch, G. 2011. Evidence for Nitrogen Fixation in the Salicaceae Family. *Indian Journal of Ecology* 38: 80-83.
- Yin, R. K. 2011. *Qualitative Research from Start to Finish*. New York: Guilford Press.
- Zimmerer, K. and T. Bassett. 2003. *Political Ecology: An Integrative Approach to Geography and Environment-Development Studies*. New York: Guilford Press.

## APPENDIX A

Hej -----,

Tack för ditt svar och rekommendation av boken, jag ska kolla det snart. Förlåt mig, men jag är inte svensk, jag kommer från Kalifornien. Min svenska är begränsad, så jag kommer att skriva frågorna på engelska. Om du är bekväm med det, kan du skriva svaren på engelska? Om inte, så går det bra.

### **En introduktion av min studie:**

My research is in political ecology, which is an interdisciplinary field of study. I am looking at the history of hop cultivation in Sweden and how it has declined since its production was no longer mandated by royal decree. On a larger scale, I discuss how this decline was a result of the industrialization of the country and the shift of the peasant (farming) class to the working class in the mining and lumber industries. The study then discusses what the current context of Swedish hop farming and consumption is, highlighting the fact that Sweden now imports around 2/3 of the hops it consumes. This dependence on foreign production systems comes with various environmental impacts that I argue can be reduced by an increase in local and domestic production systems.

The work that National genbank is doing with hops is interesting to me because it's living evidence that hops were once cultivated with great diversity in Sweden and that the crop is able to thrive in this climate and geography. The data I would like to collect from this work revolves around these points.

Below are some basic questions that are on my mind. If it is okay with you I would like to use the answers you give me in my thesis. If you do not want me using your name, you have the right to be anonymous. This means that if you chose to be anonymous, I will remove any information that could be linked to you.

### **Några grundläggande frågor är:**

- 1) What is the ultimate goal of documenting and recovering these naturalized Swedish hops?
- 2) Is the purpose of the plants strictly for genetic research, or are the hops commercially sold as well? If so, do you foresee hops as being a viable agricultural commodity?
- 3) Has interest been expressed to you by local brewers for using the hops?
- 4) How many varieties of hops do you grow? How many have been documented?
- 5) How do you acquire the hops or who do you receive them from?
- 6) Do you find it difficult to cultivate hops?
- 7) Last year there was an incredible hot and dry summer, was this an issue for keeping healthy hop plants?

Jag skulle gärna vilja träffas personligen och intervjua dig eller någon annan med några djupare frågor. Om det är okej, jag tycker det skulle vara jättehäftigt att få se dina humleväxter, också. Är det möjligt?

Tack för din hjälp,  
Enrique



## APPENDIX B

Hej,

Jag heter Enrique Mejia. Jag är en masterstudent vid Lunds universitet och jag studerar humanekologi. Jag skriver min mastersuppsats om humleproduktionens historia i Sverige och hur produktionen ser ut nu. Jag skulle gärna villja fråga er om ert företag. Min svenska är dock begränsad så jag kommer att skriva frågorna på engelska. Om det är möjligt, kan du svara på engelska också? Om du är intresserad av att hjälpa mig, så är frågorna:

- 1) How long have you been producing hops?
- 2) What motivated you to become a hop farmer?
- 3) Is there a tradition of hop farming in your region?
- 4) Do you find it challenging to produce hops while receiving the current market-price?
- 5) How and where do you sell your hops? Are they sold internationally?
- 6) Do you feel that there is growing interest in Swedish-grown hops as opposed to the more popular producers from the US and Germany?
- 7) Why should brewers buy Swedish-grown hops?
- 8) How do you feel about the current state of hop production in Sweden?
- 9) How can the Swedish hop industry be improved for your company to thrive?
- 10) Is environmental sustainability something your farm pursues? If so, what are some steps that you take?

As a disclaimer, I will be using this information for my thesis (mastersuppsats) and the goal is to ultimately have this research published. This means that everything that I use will be accessible to the public. I will not include your names, your location (except that you are in Sweden), or your company's name. If you have any questions regarding privacy or the study in general, please do not hesitate to ask.

Tack för er tid,  
Enrique

