

Agrarian Literature in Scandinavia and in Britain, Ireland and North America during the 18th century

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Abstract

This paper presents statistics on the annual publication of agricultural literature in Scandinavia (Schleswig-Holstein, Denmark, Norway, Sweden-Finland, Iceland) and in various Anglo-Saxon countries (England, Scotland, Wales, Ireland, North America) during the 18th century. Two different types of databases have been used. The first includes all articles that appear in two 18th century bibliographies for the kingdoms of Denmark and Sweden. These bibliographies are among the most extensive found in Europe on this subject. The second covers books on agriculture: the English Short Title Catalogue versus the catalogue of the National Library of Sweden. The number of articles is ten times greater than the number of books. The topics dealt with in articles are often more specific than those in books. (Part of this text and some of the diagrams have been published in Swedish, Myrdal & Söderberg 2012.)

Introduction

The number of preserved texts is one of the key indicators of intellectual activity and knowledge production in a region or society. Acting as a source of information is of course their main purpose. Early works on agriculture, for example, provide us with unique information that we would otherwise know nothing about. Yet these texts also have another characteristic, namely that they are registered and collected, providing an easy overview and allowing them to be counted. As a result, the number of texts (printed books in particular) has been used by historians and economic historians as an indicator of general trends in society.

This has come to play an important role in theories about the emergence of a knowledge-based society in Europe. Jan Luiten van Zanden argues that the number of books is an important indicator of the formation of human capital (Zanden 2009:294-295). He collected data on total book production in several countries, thus highlighting important general trends, such as Northwestern Europe's advancement and the waning of the Mediterranean countries, which was partly connected to changes in literacy (Zanden 2009:185, 195). For example, Sweden makes great progress in this regard during the 18th century.

Increased book-production was not limited to economic topics. Johan Söderberg's analysis of the distribution in Britain from c. 1500 to c. 1800 (featured in a parallel study to this one) has shown that the proportion of books on scientific subjects stagnated at just a few percent. The only more practically orientated topic that grew in a long time perspective was economy, which for a long time only had 2-3 percent but in the 18th century increased to 6%. Subjects within the arts and literature grew, and tripled from c. 7% in the beginning of the period, and there was a clear downward trend for books on religion. The dialogue in society generally tended to be more secularised, as revealed by printed texts, and reading for pleasure came to play an increasingly important role (Söderberg in Myrdal & Söderberg 2012).

Indeed the growth of more practice-oriented book production should not be underestimated, as this was a burgeoning part of an even faster growing general intellectual discussion in

printed books. From the 16th century, the increase in book production in Europe was on such an enormous scale that absolute change for certain subjects is just as important as relative change.

Joel Mokyr has discussed how technical change occurs in a series of publications. He has recently used a survey on books and different subjects in a detailed study of changes in Britain, which is assumed to have spearheaded the development during the 18th century. Mokyr shows that the proportion of books on science, medicine and technology increased from approximately 5 to 9 percent during the 18th century. Most of this increase occurred during the first half of the century (Mokyr 2009:46-47, based on the Eighteenth Century Collections Online database). “Literature” increased from below 20 percent to around 30 percent.

Mokyr uses agricultural literature, in combination with other indicators such as agricultural societies, to highlight an accumulation of “agricultural knowledge” (Mokyr 2009:183-186), although he does not present any statistics. Mokyr remarks that it is doubtful whether these agricultural books actually helped to raise agricultural productivity and that peasants probably did not read them. He then argues that such an objection probably misses the true significance of the change. These books represented a thirst for knowledge and indicate that the idea of increased knowledge was a good thing. Indeed collecting knowledge, a characteristic of many of these texts, was an important prerequisite for future progress and innovation (Mokyr 2009:187-189).

Other scholars have produced statistics on agricultural literature related to the spread and growth of knowledge. Although French research on this subject is probably the most extensive and pervasive (e.g. Amouretti & Sigaut 1998), this paper exclusively focuses on Scandinavia, Britain, Ireland and North America.

In 1984, Richard Sullivan published an article on the development of books on agricultural production techniques in England from the 16th to the 19th century, based on a well-known bibliography by Walter Frank Perkins published in 1932 (and in two enlarged editions published later in the 1930s). Sullivan compares this to the number of patents and finds a high correlation. In fact, he actually considers that books could be an even better measure of general technological change than patents. His diagram depicts information on books per decade and features two curves, one for first editions and the other for subsequent editions. The number of extra editions tends to decrease over time, especially during the latter half of the 18th century, when the number of new titles increases (Sullivan 1984:275). He also notes that the number of periodicals increased during this time, which probably means that it is unlikely that book titles reflect the full discussion about development and production.

To my knowledge there are no detailed studies of the number of articles in Britain. In *The Atlas of Science* (Börner 2010:4-5), graphs over articles in JSTOR from late 17th century and onwards is presented, mainly based on papers from the Royal Society. The curve is stagnating during the late 17th and early 18th century, and then it actually decreases in the second half of the 18th century, but another graph shows a fast increase of the numbers journals in the 18th century. A more detailed study is needed.

Extensive bibliographies that include all journal articles about agriculture have been published for Denmark and Sweden (see below). The results for Denmark have been analysed by Gerd Malling (1982) and were subsequently used in an article by Thorkild Kjaergaard (1986),

although he does not quote Malling for some reason. Kjaergaard comments about other national agricultural bibliographies from Germany, Italy, England (Perkins) and France, to explain why he does not use them. He states that these are incomplete, mainly because they do not include articles published in journals. Only the Swedish and the Danish bibliographies are complete. Kjaergaard suggests that the introduction of the printing press was crucial for the modernisation of Europe. He illustrates this by means of a diagram of Danish agricultural publications. I consider this as a simplification, which does this key material, in the two bibliographies, an injustice.

One very interesting question concerns the circulation of these books and how they reached their readers. In an article about 18th century Scotland published in 2006, Heather Holmes shows that agricultural books did indeed reach out to the gentleman farmers in the countryside during the latter half of the century. She does so by using information provided in the books themselves, as well as analysis of a few preserved subscription lists.

The question about the impact and significance of this literature on practical farming at the peasant level can only be answered by using a number of sources in addition to material about book sales, such as farmer's account books and diaries (perhaps also a close reading of fiction from the time could give hints). I will assume that the middle class was familiar with the texts and had contact with the broad mass of peasants. There was a two-way communication – a large proportion of those living in the countryside were engaged in the idea of change and improvement, even though only a fraction of farmers and peasants actually read the literature. In Sweden, for example, peasant farms were adopting new tools, such as the iron plough, at an even faster rate than manor houses and large farms (Gadd 2011:147-148). (Besides there are several examples of peasants sending in suggestions to the learned societies, as the Royal Patriotic society, as answers to their price questions, when one could earn some money.)

Another important aspect of the literature will now be highlighted. I presume that the authors, who were trying to promote change and often stated that they were practical farmers, were raising issues that were being discussed in the countryside and deemed important at that time. The literature thus both affected agriculture and constituted an effect of this change. Through this literature, we can see the wind of change that started to blow in society as a whole during the 18th century.

The investigation

In this investigation I have concentrated on the production of texts in Anglo-Saxon countries and Scandinavia, partly because of the good databases and partly because of the drastic increase of texts in these regions. (*This study is connected to an overview of agricultural treatises in world history until the 16th century: China; the Arab world; India, etc., which will be presented in another context, as a preface to a translation into Swedish of the classical authors. The advancement witnessed in Europe did not begin until the late Middle Ages and initially mainly consisted of translations of classical authors.*)

Agrarian literature accounts for a minor proportion of total book production, and did not reach a wider readership. However, as already stated, the literature will instead be regarded as an indicator of a new way of thinking in different strata of the society, rather than just among those who actually read the texts. In analysing the data, I will focus on annual changes, as well as wider developments, since events play an important role in enabling understanding of

overall change. Historical occurrences such as revolutions can come into play, as can specific changes in the intellectual world (e.g. learned societies). At the same time, the goal is to identify more deep-rooted thought structures, i.e. the social mentality that was decisive for the course of historical development and changed geographical centre of gravity towards the periphery.

The study is organised in two parts. Firstly, I look at books (including pamphlets). I compare Anglo-Saxon countries with Sweden. Then I look at all texts on agriculture, including journal articles, of which there are roughly ten times more in comparison to books and pamphlets. Here I compare 18th century Sweden (including Finland) with Denmark (with analysis of the different parts of this kingdom).

Books in the UK, North America and Sweden

The database used for the Anglo-Saxon texts is the *English Short Title Catalogue* (ESTC). It contains titles of publications found in the catalogue of the British Library, as well as two thousand other institutions. Hundreds of thousands titles are registered, which were published in England, Scotland, Wales, Ireland and North America between 1473 and 1800. Searches have been performed for “agriculture”, “gardening” and “forestry”, but in the diagram below (Figure 1) only agriculture has been included.

Working with databases the categorization is a source critical problem, often forgotten. I thus made a check of the catalogue where each publication has been counted. I excluded second editions and translations, and was a bit stricter in identifying “agriculture”, so on the average my numbers are about 30% lower than if the categories in the database is used. However the trends based on the two curves are following each other very close (Figure 1c). I have decided to base my study on the categories in the database, as it will be easier for others to control the result. If the trends had differed I would have had to problematize the comparison. Now I can conclude that a comparison between the Swedish and the British material is valid, though it is some overestimation of the British numbers compare with the Swedish.

Only English publications have been chosen, and they must have been printed in: ”England”, ”Scotland”, ”Ireland” or the ”United States” (including the period prior to 1776). Publications printed in France and other countries have been excluded. Wales is excluded as there were on five hits in the catalogue during the 1790s and none before. There are only two hits for “Canada” in around 1790 and these have been included in the North America category.

A source-critical comment is that older literature sometimes did not include a publishing year. A catalogue entry of “circa 1740” becomes simply “1740” in this study. However, this does not have a major impact; not even on short-term variation.

I start the dataset with the earliest publications from the 16th century, as books were published in England during this period (the earliest text is from 1523). In the other countries the production of agricultural literature did not really begin until the 18th century. I have divided Figure 1 in two parts: Figure 1a depicts the long history of agricultural publishing in England (where the other countries do not appear as clear) and Figure 1b, which shows how other countries caught up during the 18th century.

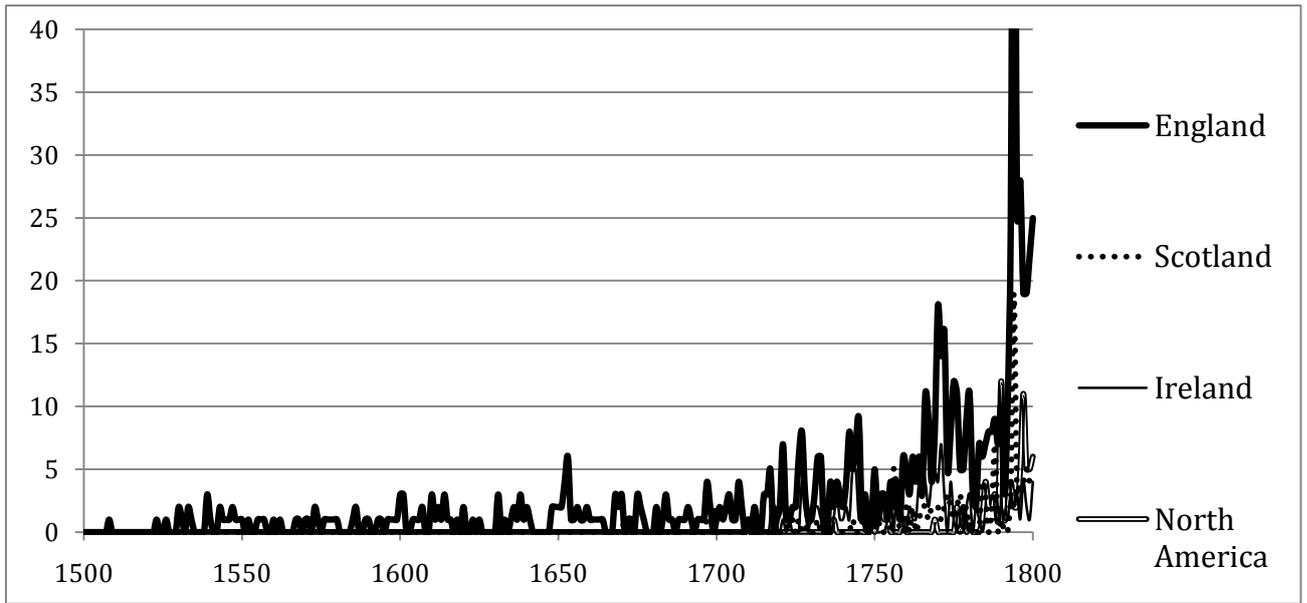


Figure 1a: Printed publications that fall under the search word “agriculture” in the United Kingdom and North America 1500-1800.

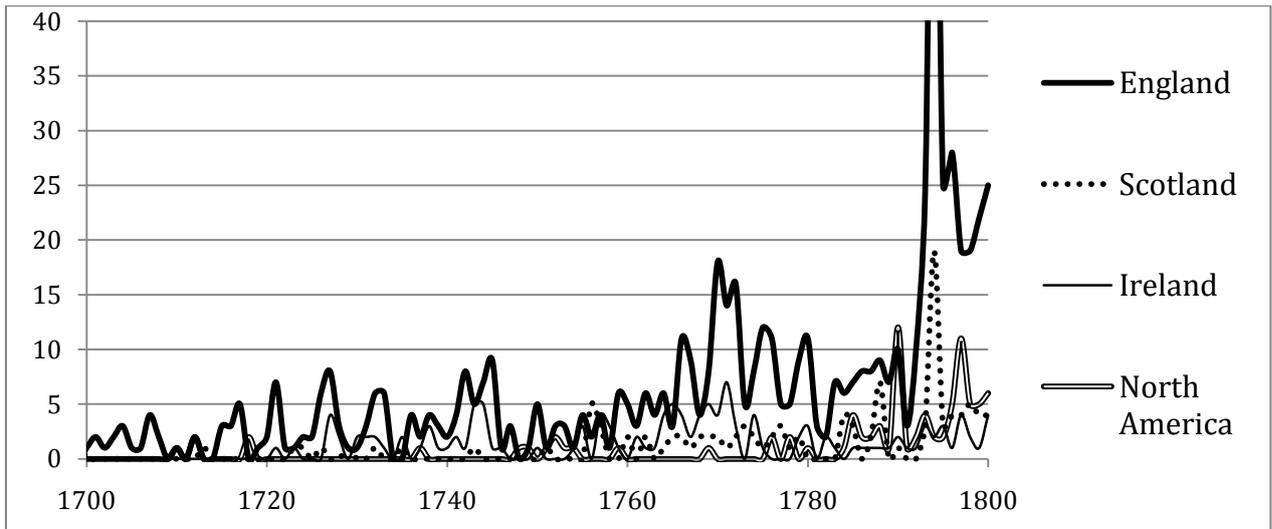


Figure 1b: Printed publications that fall under the search word “agriculture” in the United Kingdom and North America 1700-1800.

Source: English Short Title Catalogue

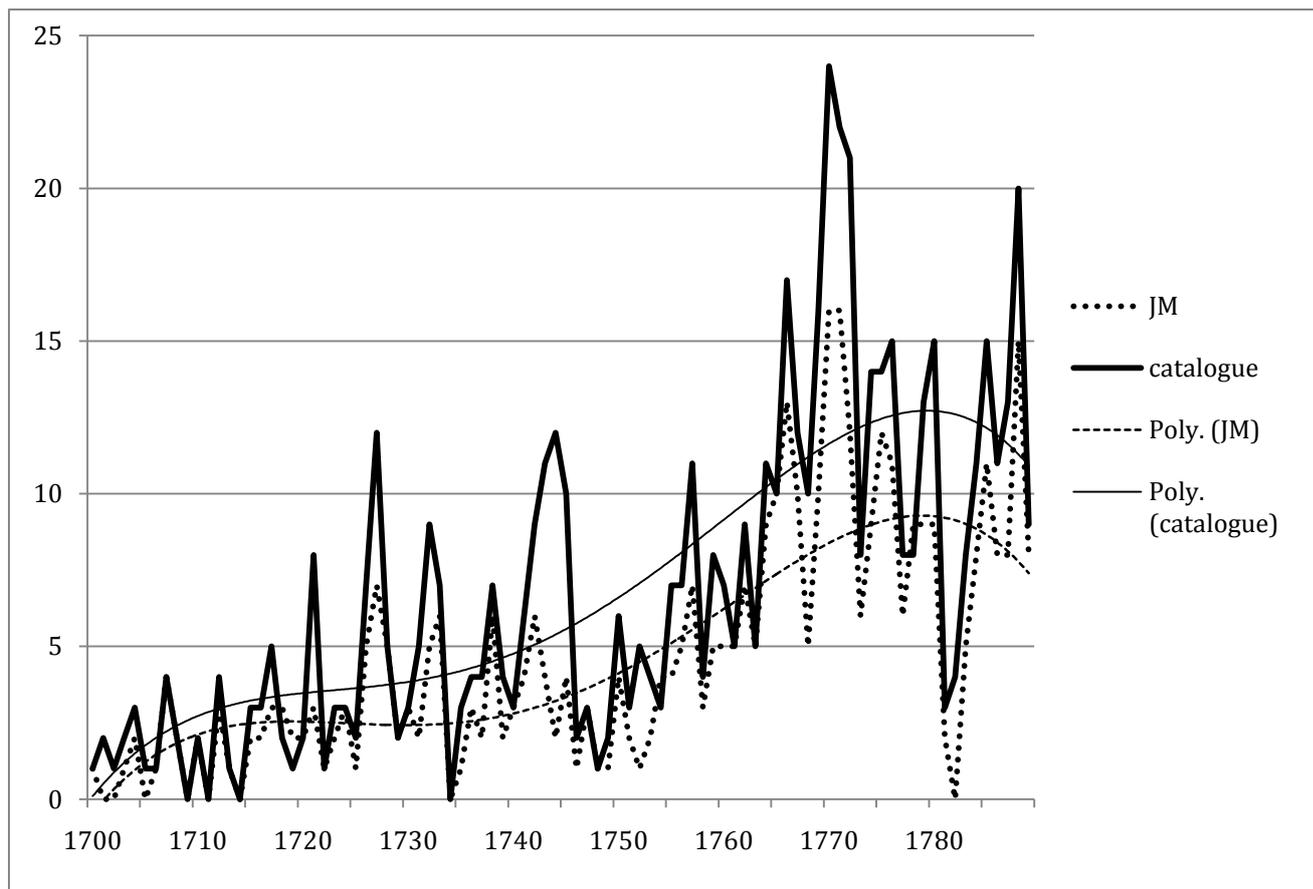


Figure 1 c. Source critical check where the numbers are re-counted by JM

The numbers presented in Figure 1 are similar to those presented by Sullivan (see above), based on Perkins (third ed. 1939 republished 1961). Walter Frank Perkins (1865-1946) was a book collector. He admits himself that the rules of inclusion in his bibliography were somewhat arbitrary (Henderson 1961:vii). Later editions of the catalogue include journals, though not the individual articles that appear in them.

One cannot write about English literature about agriculture without quite extensively mention Fussell. The English agricultural historian, George Edwin Fussell (1889-1991), published an extremely detailed review of English agrarian literature, spanning multiple volumes. Fussell had been a librarian at the Ministry of Agriculture and Fisheries, and he made it his life project to read through (nearly) all old literature about agriculture. In 1947, two years prior to his retirement, he began publishing a series of books about agricultural literature. In 1950, the volume covering the period 1731 to 1793, which is of greatest interest to this study, was published. Publication of further volumes did not resume until the 1980s.

His books are descriptive bibliographies, in which book after book, author after author, are accorded a few lines each. His selection is somewhat subjective, and even includes the work of the Swedish biologist Carl Linnaeus (1797-1778). For the years 1731-1793, Fussell lists roughly four hundred books. When viewed per annum (I made a graph, excluded here), there is still a certain correlation with the curve above, with an increase from the 1750s until the mid-1770s, followed by a slump and then a renewed increase. Fussell identifies certain key individuals: Jethro Tull (1674-1741) during the 1730s, as well as William Marshall (1745-

1818) an Arthur Young (1741-1820) from the end of the 18th century and in the early 19th century.

I return now to the present investigation. After a short upsurge in the 1740s a quite long period of expansion came in the 1760s, which corresponded to an increase also in the Continent, especially France (I return to this when talking about Sweden). This was also the period when the Irish book production followed in the increase. Later, at the end of this century, Ireland would stagnate, and instead the other countries expanded (including Wales of course with their five hits in the 1790s, not included in the graph).

The declining rate of publication during the 1770s can partly be explained the same way as for Sweden (see below). A decrease in book production was compensated by an increase in articles published in journals. Before 1764, journals were published in only a few years (1727, 1740, 1739), but from then on, ten different journals were more or less consistently publishing issues for the rest of the century. I have used the list found in Perkins' bibliography (Figure 2). Nicholas Goddard mentions two further journals from this period in his chapter in AHEW (*The Agricultural History of England and Wales*), on literature and societies, but he also claims that few of them were of any significance before the early 19th century (Goddard 1989:368-369.) Almost all of these journals from the late 18th century in UK were the result of private initiative, unlike in Scandinavia, where such periodicals were published by agricultural societies.

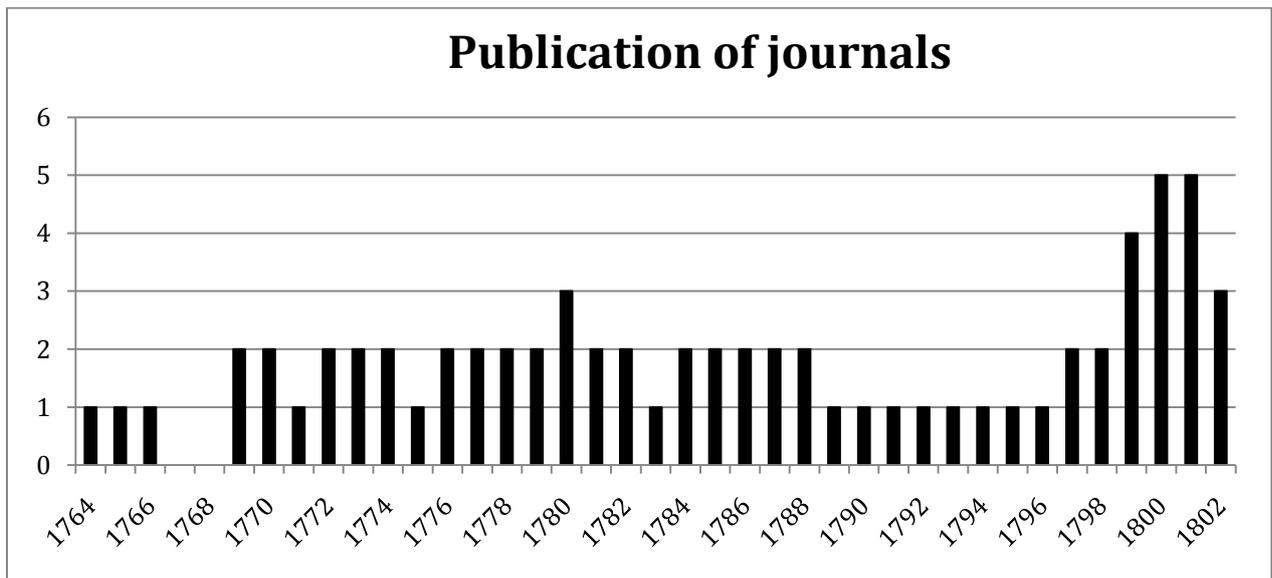


Figure 2. Number of agricultural journals published annually in the UK.
Source: Perkins 1961:282-283.

As there is no complete bibliography, we cannot ascertain how the publication of journal articles compensated for the stagnation in book production. Towards the end of the century, we see a definite increase of both of books and journals, and this represents somewhat of a breakthrough period for agricultural publications in Anglo-Saxon countries (excluding Ireland).

When it comes to books, the curves for England and Scotland peak in around 1794, with the former reaching 72 hits (it actually goes off the scale on the graph here). The explanation for this is that the Board of Agriculture was founded in the UK in 1793 and it initiated a number of local surveys, which already commenced before the organisation was officially formed (Goddard 1989:379-380). More than two thirds of the publications from 1794, and between a third and a quarter of those from 1793 are made up of these surveys. However, even if these are excluded, there is still a strong increase in England and Scotland during the 1790s.

The sharp rise in around 1800 was also matched by considerable sales of both of books and magazines in the first quarter of the century (Goddard 1989:362, 369-370). There are several possible explanations for this more deliberate focus on agrarian topics. The French revolution could have highlighted the need for change in the countryside, so as to pacify revolutionary tendencies. Food supply had become an important issue during wartime.

A common feature is the advance of the periphery. Scotland has already been mentioned. The North American curve picks up shortly after independence. Printing had then existed in the colonies for a long time and played a significant role in the fight for freedom (e.g. Thompson 1956), but economic issues seemingly received a greater focus following this political upheaval.

“Agriculture” is the only category to be included here, but a comparison with the other two categories, “gardening” and “forestry”, is certainly interesting. In England, the number of publications about gardening was higher than those about agriculture during the first two decades of the 1700s. After this period the figure stagnates. Forestry receives only a few hits, almost exclusively at the beginning of the 1700s. Gardening falls, even in absolute terms. There is an upward trend for agriculture, though with some dips.

The publications about gardening were, according to the titles, and at least initially, largely for the enjoyment of the upper class, and, surprisingly, many of them are specifically targeted at women. This differentiates them from books about agriculture, which, according to the titles, had a distinctly practical focus (even if many of these are also explicitly directed at “gentlemen”, i.e. to the middle and upper class).

Table 1. Proportion of books about agriculture, gardening and forestry

	Agriculture	Gardening	Forestry
1710-19	0.16	0.27	0.02
1720-29	0.21	0.24	0.05
1730-39	0.18	0.16	0.01
1740-49	0.25	0.1	0.01
1750-59	0.15	0.11	0.01
1760-69	0.28	0.13	0
1770-79	0.4	0.24	0
1780-89	0.22	0.09	0.01
1790-99	0.49	0.08	0.01

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Source: English Short Title Catalogue

I will now turn my attention to Sweden. The National Library of Sweden (Kungliga Biblioteket) is tasked with both registering and keeping a copy of every single book ever published in Sweden. It does so pretty well – it has registered all books published and has copies of almost all of them.

The catalogue is computerised, but there is no specific category for agricultural literature. I therefore referred to the old catalogue, with paper cards sorted under relevant search words (this is known as going to *Plåten* (lit. “the steel”) as the cards are kept in metal cabinets). My search has been supplemented with a few publications not found at the library, although they are registered there. The search words I used are “*lantbruk*” (agriculture) and “*husdjur*” (domesticated animals/animal husbandry), including subcategories. Although Finland is included in this material, it is not presented separately. Figure 5 shows the number of printed books per annum.

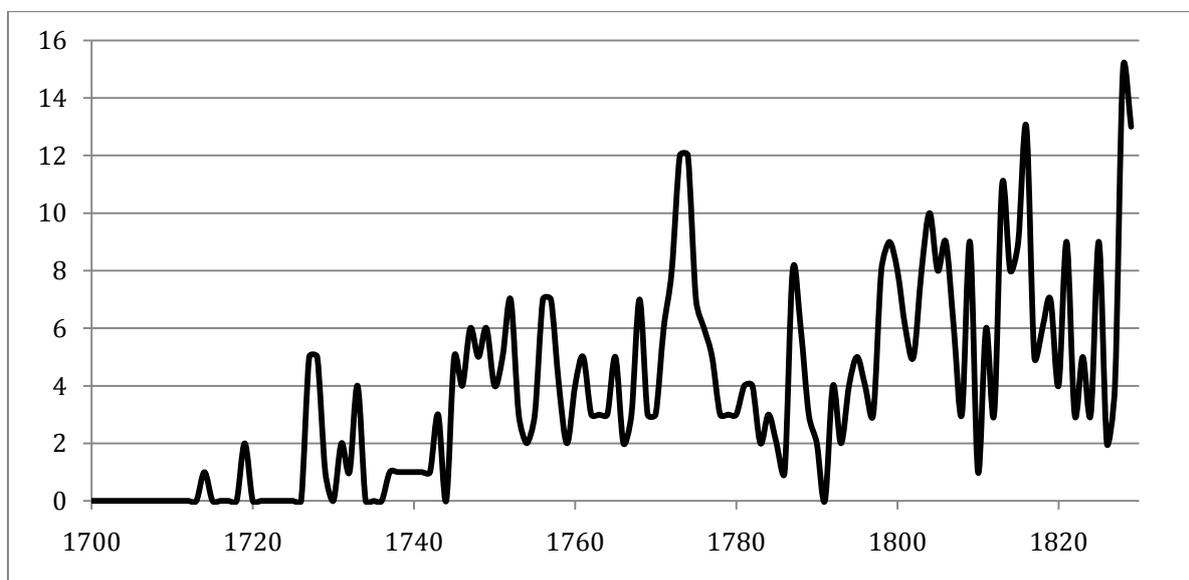


Figure 2. Swedish agricultural literature, printed publications per annum.
Source: National Library of Sweden (card catalogue).

A comparison with England shows that Sweden, with almost no agrarian publications at all during the 17th century (three publications appeared towards the end of the century), quickly reached the same number of publications as the larger nation in absolute terms during the 1740s. This was partly caused by the rapid general rise in book production that Sweden witnessed during this century (see above). But it is astonishing that during the late 1740s and 1750s, Sweden actually had a larger annual output of agricultural books than England. I will return to this early peak in Swedish book production below.

Agricultural literature played a relatively lesser role in England than in Sweden – around 0.5 percent, while the share in Sweden was twice as high or more. A likely explanation is that, with England being a larger country, overall book production was higher and also more diversified (agriculture is usually one of the first topics raised when shifting to publish about the economic and practical.)

Two different databases can be used to compare the total number of publications in Sweden. One of these, SB17, includes all publications that appeared during the 18th century. The other is LIBRIS (the catalogue for all Swedish research libraries). The latter contains a significantly larger number of individual publications, mainly due to government regulations (requiring them be printed to be made official), as well as some ephemera. Only a very small number of these have been registered under agriculture in the card catalogue, meaning that the SB17 database is thus more relevant (see Figure 3) Based on the latter, the proportion of agricultural publications is between 1 and 1.5 percent or more of total production (when using the LIBRIS database the proportion decreases to less than 1 percent). However, it does not increase in the latter half of the century. Instead it stagnates and actually decreases from around 1.5-3 percent in mid-century to around 1 percent in the early 19th century. The general trend is thus the opposite of that in the UK. The main reason for this is that Swedish book production became more diversified.

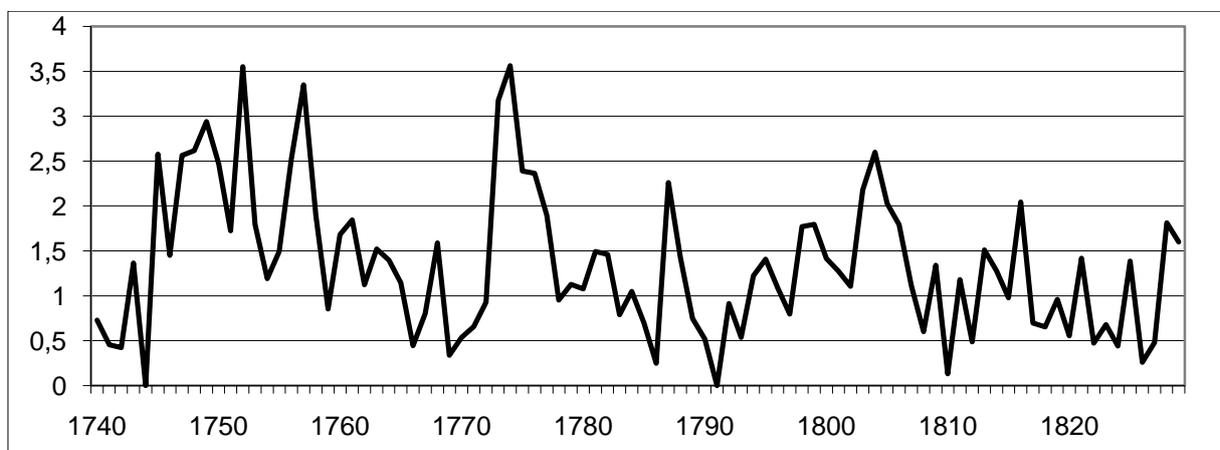


Fig. 3. The percentage of publications in Sweden on agriculture and animal husbandry compared to the total number of publications published between 1740 and 1800 (based on the SB17 database)

Source: National Library of Sweden

The first upsurge during the 1740s can be linked to Carl Linnaeus, the world famous biologist. He not only published his major work *Systema Naturae*, but also embarked upon a number of field trips across Sweden in the 1740s to identify plants, animals and customs that were used by peasants. He wanted to provide information about the economically useful, namely that which could be used to increase production. His endeavours were supported by funding from the parliament. His books became the model for a number of similar studies, often produced by local priests or the gentry. This explains much of the early peak of agricultural literature in Sweden. At this time, Sweden not only produced more books than England, but some of them were translated, for instance into Danish (see below).

Agricultural literature experienced its first slump during the 1760s. This can be explained by the intense political and ideological debate during these years, meaning that the focus shifted to other kinds of literature. In Sweden, there was an enormous upsurge in the number of publications following the introduction of the Freedom of the Press Act in 1766. The resulting plethora of pamphlets did not concern agriculture, but politics.

There then follows a somewhat parallel process in both England and Sweden, with an increase in book production in around 1770 and a decrease during the 1780s. The increase was surely connected to a growing and widening interest in agrarian questions prior to the French Revolution, something that has been noted for many years in French research about agronomy (Boulaine 1998:53). Swedish intellectuals and writers certainly looked to France as a model country at this time.

The more gradual decrease that began in the 1780s can at least initially be explained by an increase in the publication of journal articles. Much of what would otherwise have been appeared as separate publications, mainly as pamphlets, was now being absorbed by the increasing number of periodicals (Högberg 1961:120).

Nordic bibliographies about agriculture

The next step is to include all the articles, using two special bibliographies of Danish and Swedish agricultural literature covering the 18th century (Figure 4). These are among the most comprehensive bibliographies of this type of literature that we have in Europe. A comparison with the catalogue at the National Library of Sweden shows that the Swedish bibliographies provide about ten times as many hits (sometimes even more) after the 1740s (see Figure 5 below), because of the inclusion of all the journal articles.

The Swedish bibliography was put together by Per Magnus Hebbe (1886-1942) and appeared in 1939 (up to 1800) and 1945 (up to 1850). From 1932, he was a librarian at the Agricultural College of Sweden (Lantbrukshögskolan, which became SLU, the Swedish University of Agricultural Sciences in 1977). The bibliography was created on his own initiative and he worked on it for many years. It was then published by the Royal Swedish Academy of Agriculture (Kungl. Lantbruksakademien).

Ole Karup Pedersen, who was probably inspired by the aforementioned Swedish project, compiled the Danish bibliography. (Nordic countries often function that way, providing a mutual stimulus to one other). It was published by the Kongl. Landhusholdningsselskab in 1958. This volume covered the period up to 1814 (a planned second volume was never published.)

Staffan Högberg produced statistics based on the Swedish bibliography for his book about the Royal Patriotic Society (Kungl. Patriotiska Sällskapet) published in 1961. This was the most important society for agriculture in Sweden during the 18th century. Unfortunately, he only presented information for each decade.

Gerd Malling produced a special study about the Danish bibliography in 1982 for her master's thesis (available at the library of the Royal Swedish Academy on Forestry and Agriculture). This forms the basis for the diagram, but the data has been verified using Pedersen's bibliography.

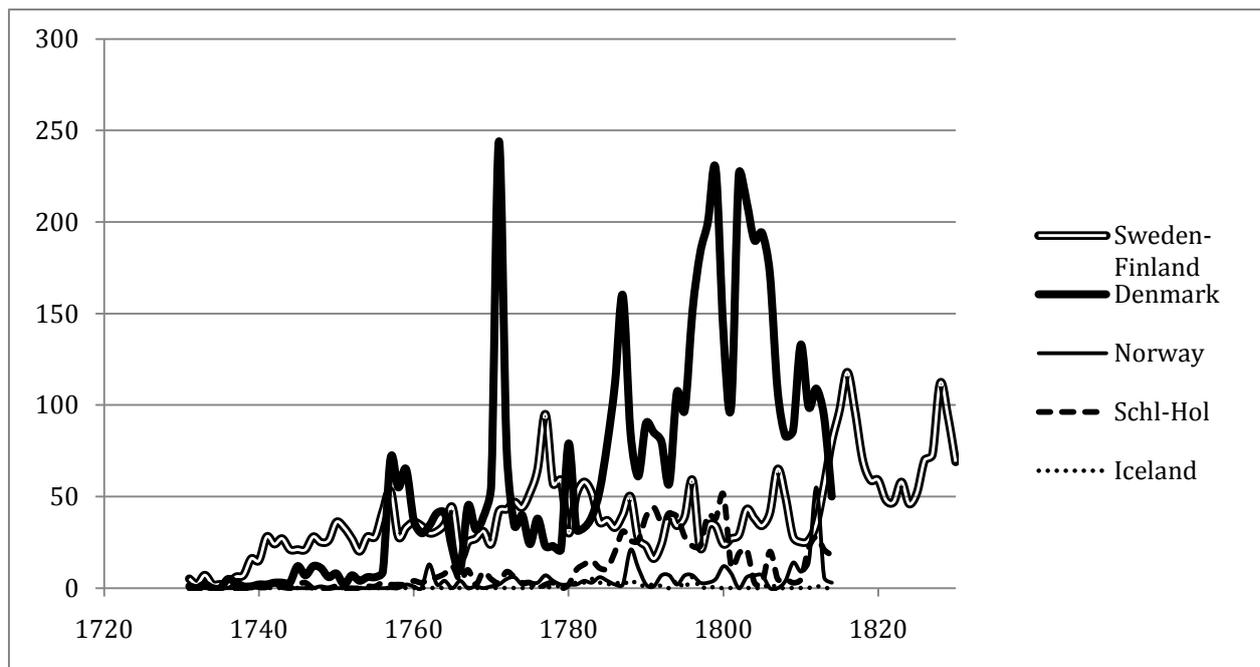


Figure 4. Annual production of agricultural texts in the Nordics (including articles), c. 1720 to 1820 (Schl-Hol = Schleswig-Holstein)

Source for Sweden-Finland: Hebbe 1939-45

Source for Denmark, Norway, Schleswig-Holstein, Iceland: Malling 1982; Pedersen 1958.

At a first glance one can immediately see some remarkable changes. One is the Swedish growth in the 1740s another is the massive increase in Denmark decades around 1800. Then a rapid increase starts in Sweden in the 1810s and beyond (although Sweden lost Finland in 1809, and the Finnish literature therefore no longer is included in the graph), but if this has any counterpart in Denmark we do not know because the Danish bibliography only extends to 1814.

Malling has performed a study of foreign agricultural books that have been translated into Danish. (I have not done this for Sweden, but the vast majority of texts were published by Swedes in Swedish.) Malling notes that only two hundred publications have been translated into Danish. Surprisingly, translations from Swedish were common during the 1740s (the “Linnaean” period), a time during when Sweden also enjoyed an early peak in publication. At the same time Sweden began to advance and take a lead in Europe on publishing in general, most likely because this time period witnessed a significant change in the mentality of the country.

The possibilities for publication must be weighed in (hence one cannot concentrate on books alone) and in Sweden this is closely connected to learned societies. In Figure 5, the number of books, depicted in Figure 2, is compared to the total number of texts shown in Figure 4. Other than showing how many more are registered, this diagram also shows the activity of learned agricultural societies. The number of journals published by others is negligible, with just a few issues appearing during the 1760s and 1770s.

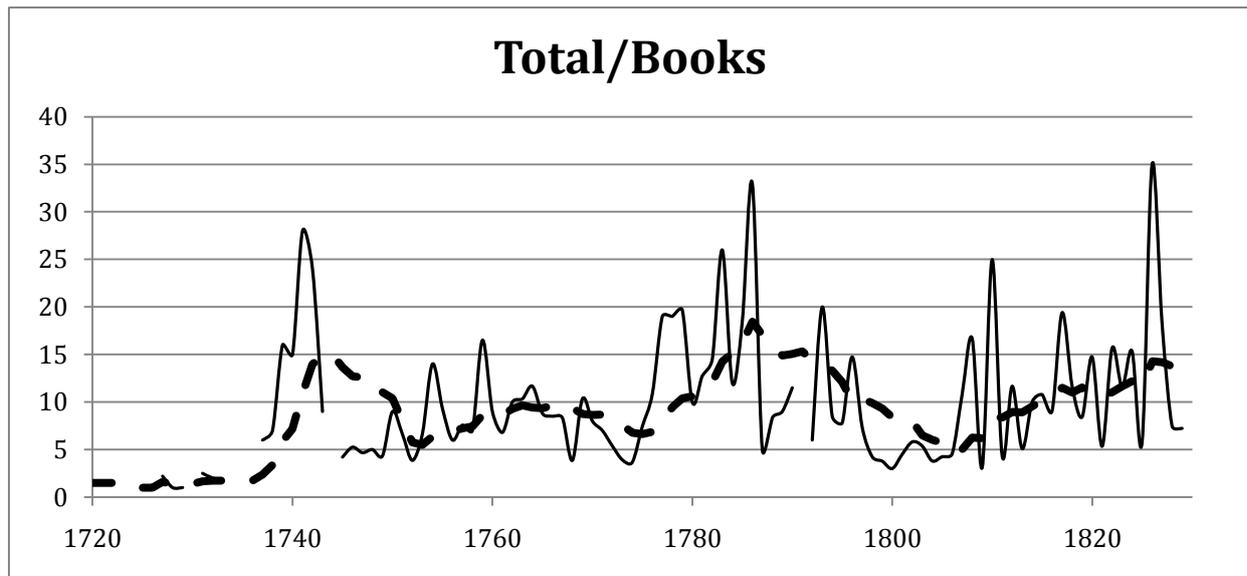


Figure 5. The total number of texts compared to the number of books in Sweden, with a ten year moving average
Source: Figures 2 and 4.

The Royal Swedish Academy of Sciences (Kgl. Vetenskapsakademien) was founded in 1739 and immediately began publishing its “Transactions” of the Royal Swedish Academy of Sciences (Vetenskapsakademiens handlingar). Partly under the influence of Linnaeus, but also other important scholars, this journal was, at least initially, very much aimed at promoting the economy, not least agriculture. Gradually interest then shifted to a more pure science focus, though not completely until the 19th century.

Nevertheless, it was felt that there was a need for a more practical focused learned society, which resulted in the foundation of the Royal Patriotic Society (Kungl. Patriotiska Sällskapet) as a separate society in 1772 (at first, from 1766, it was connected to the society Pro Patria) It began publishing its monthly Agricultural Journal (Hushållningsjournalen) 1776 (with a precursor published from 1770). Agricultural publication was then reinvigorated. However, this declined again once the journal reduced the rate of publication a decade later, since it failed to make a sufficient financial return. The number of copies was reduced gradually from 600 in the 1770s to 450 in the late 1780s (Högberg 1961:134-135).

During the 1810s, the government and the new king, Jean Bernadotte, a French revolutionary general, took an interest in promoting Sweden’s economy. The Royal Swedish Academy of Agriculture (Kungl. Lantbruksakademien), which was founded in 1811-1813, soon began publishing periodicals. This national-wide organization was supplemented with a number of regional organizations (Hushållningssällskap). Two of them had been founded already in the end of the 18th century (one of them being the Finnish, which then after 1809 survived under Russia). The majority were however created in the first part of the 19th century, and many of them started periodicals (Kåhrström 2002).

It was as though Bernadotte, a former revolutionary and originally a man of the people, identified a shortage and tried to address it. Like all historical figures, he acted against a

backdrop of social interests, and at the time he enjoyed strong support from broad sectors of the population. As in England, we can assume that the revolutionary period sparked an increased interest in agriculture.

It has already been noted that Sweden introduced the Freedom of the Press Act in 1766. Denmark introduced a similar law in 1771. Agrarian literature did not, however, immediately benefit from increased press freedom. Instead it was other literature that advanced, and for a short time this actually detracted interest from agrarian literature.

Something that is specific to Denmark is the tremendous increase of agricultural texts in the decades around the turn of the 19th century. This peak occurred at a time when the country was experiencing a kind of peaceful revolution, with the social structure of the countryside undergoing total change: the “Stavnsbåndets ophævelse”, the closure of a serfdom-like institution, in 1788, the subsequent major state interest in agriculture and the state support of a free peasant class. This seems to have had a significant impact on agrarian literature, and as the reform was preceded by discussion the increase also commenced prior to 1788.

Schleswig-Holstein, the southernmost part of Denmark that was also a part of the German Empire, experienced an increased rate of publication in the decades before 1800. Norway's curve rises slowly and this is actually part of the expansion of the periphery. In relation to England and to Germany, the advances in agricultural publishing during the 18th century as a whole, represent an advancement of the periphery as seen in Scotland and North America.

Topics

The aim of the journals was to reach a wider readership. The general tendency in the Royal Patriotic Society was that it became less dominated by the nobility. In the 1770s, 55 percent of newly elected members belonged to the nobility. By the 1790s, this had dropped to 40 percent and, by the early 1800s, it had decreased even further, so that in between 1811 and 1815, only 18 percent of new members belonged to the nobility. Other classes came to dominate the society – these included merchants, industrialists in the countryside (iron production), bureaucrats, professors as well as some priests (Högberg 1961:72-73).

Members were not obliged to subscribe to it, but we can assume a changed membership composition indicates that the society gradually reached out to the middle class in the countryside also with their journal. Attempts were made to distribute copies to non-members in county markets and in other ways, but sales were a constant problem (Högberg 1961:134-135).

Although we cannot assume that articles were better at reaching out to a wider readership than books, they do have another very important advantage – they deal with much more specific topics than books. Articles are shorter and thus tend to focus on one particular question. They are therefore better suited to this study, as I seek to use agricultural texts as a mirror of the ongoing discussion in the countryside. Authors and their readers were increasingly in touch with (and similar to) the mass of peasants, sharing their concerns, questions and thought processes.

Similar studies for books are certainly possible. This would involve analysis of the total content of a number of books. (Indeed this has been done for the period prior to 1500).

Changes over time will mirror changing interests for different topics, but journal articles provide a more immediate picture.

When analysing the various topics, I have chosen to concentrate on Sweden. A similar study would certainly have been possible for Denmark.

I began by looking at more general categories, and, as I did for UK, I will compare agriculture with gardening and forestry. (To enable a comparison with Table 1, I have used a moving average of 10 years). As expected, forestry was just as important as gardening in Sweden, but the number of texts in both these categories stagnated, as in the UK. Agriculture was consistently more important, enjoying considerable advances that are in line with the general increase in publications. Animal husbandry peaked in the 1770s, which correlates with the animal diseases that ravaged the countryside at that time.

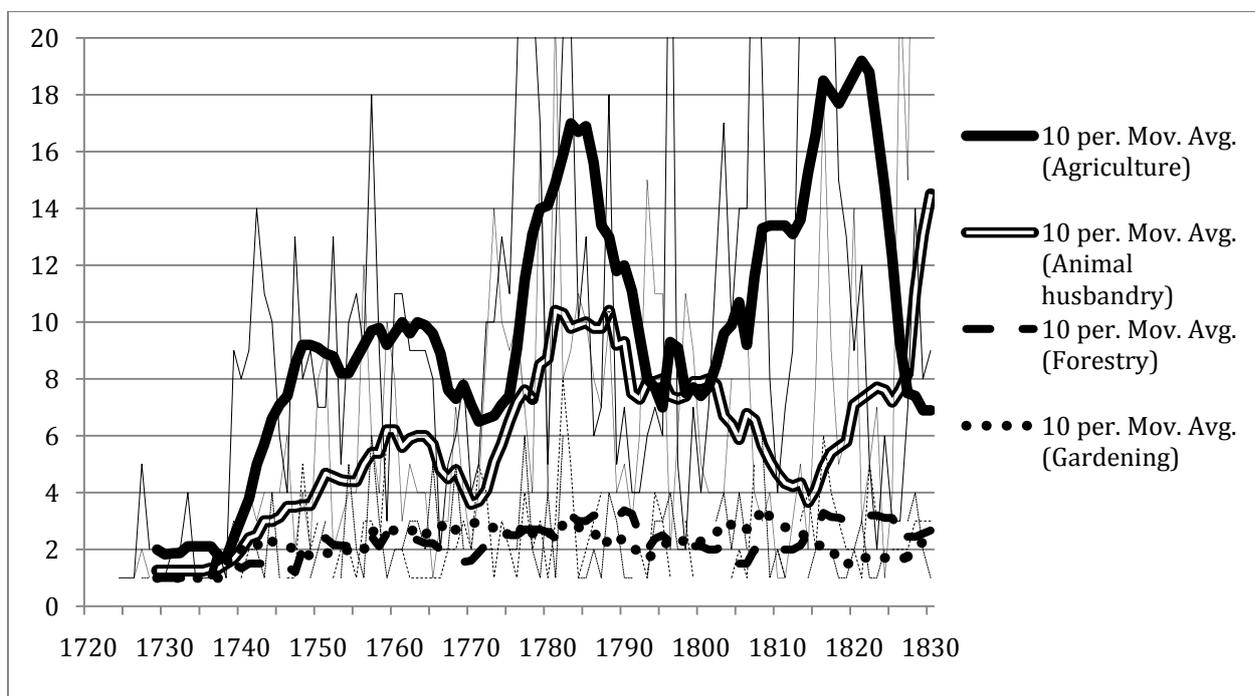


Figure 6. Texts on agriculture, animal husbandry, gardening and forestry – ten years moving average (thin lines being the actual numbers).

We can delve even deeper into the material to uncover more details. Hebbe made a precise categorization, but I have since sorted this material further (partly based on that I actually read many of these texts).

I start to look at one of the most discussed topics in the 18th century, and compare texts about crop-rotation with those about manure and soil improvement. This reveals that crop rotation was much of major interest until late 18th century. Interest in this topic then declined but interest for manure and soil improvement continued to increase. There was an intensive debate on pros and cons with marling, and new forms of manure was discussed.

Table 2. Texts only about crop-rotation, manure and soil improvement

	Crop rotation	Manuring	Soil improvement
1710-19	1		
1720-29	2	1	1
1730-39	3		
1740-49	20	6	14
1750-59	19	7	15
1760-69	11	5	10
1770-79	29	19	37
1780-89	40	8	24
1790-99	19	7	21
1800-09	56	14	31
1810-19	40	19	54
1820-29	12	12	27
1830-39	36	24	33
1840-49	28	30	59

Source: Hebbe Section D11, D3

Tools and machinery are certainly of interest. Interest in ploughs peaked during the 1770s and 1780s. The iron plough was introduced in parts of northern Sweden at this time, but it was the harrow that enjoyed major attention during the early 1800s. This was a time of innovation when new types of harrows were being distributed. A primitive threshing machine had begun to replace the flail in parts of northern Sweden in late 18th century. The topic was discussed at length. Winnowing was largely solved, at least as a first step, thanks to the introduction of the Chinese winnowing machine in the first part of the century, a direct intellectual import from China, by a ship priest, which generated several articles.

Table 3. Texts only about certain tools and machinery

	Plough	Harrow	Seed	Thresh	Winnow
1740-49	1		6		
1750-59	2		1	2	4
1760-69			2	2	1
1770-79	9	5		4	2
1780-89	8	1		2	
1790-99	1	1		5	
1800-09		2	4	5	
1810-19	4	2	3	2	1
1820-29			1		1
1830-39	3	5		1	1
1840-49	5	2		2	1

Source: Hebbe Section K2.

Another issue concerns different crops. As expected, farming of buckwheat and interest in this crop, had virtually ceased by the late 18th century. However, the major development in the late 1700s and early 1800s was potato farming, which brought about a number of articles.

Table 4. Texts only about certain crops

	Rye and wheat	Buckwheat	Potato
1700-09	1		
1710-19			
1720-29			1
1730-39	1		1
1740-49	7	4	5
1750-59	2	1	3
1760-69	2		4
1770-79	11	1	8
1780-89	11		6
1790-99	3	1	2
1800-09	5		10
1810-19	2		9
1820-29	3		3
1830-39	4		10
1840-49	3		8

Source: Hebbe Section D12

With the help of the literature, we can reconstruct discussions on major topics. We can identify the arguments that were put forward by delving into the texts. It is sometimes remarked that many of the suggestions made by 18th century agricultural writers were inappropriate. However, this merely reflects one aspect of the ongoing change in mentality. The “wrong” ideas were those that questioned traditions, as well as those that we in hindsight can deem as “correct”. It was a change from seeking tradition to seeking novelty, the literature went from describing to suggesting, and the articles reveal the agenda. This provides us with a key to understanding how agriculture was discussed and thereby changed.

Conclusions

The first level of understanding is a traditional one – the level of events. However, this should not be underestimated. Individuals, political developments and changes within the world of academia inevitably influenced the formation of a knowledge-based culture. The agricultural societies in Sweden and the Board of Agriculture in the UK had a direct influence on the number of texts published. People such as Carl Linnaeus in Sweden and Arthur Young in England can be seen to have had a considerable impact.

The next step concerns regional differences. The expansion of the northwestern European periphery is a very interesting process (this of course also includes North America to some extent). Those countries that would subsequently take the lead on agrarian development, such as Denmark, also witnessed an early and extensive increase in this type of literature. Even if

agricultural literature has not had any great practical impact on agricultural methods (though of course on agrarian politics), it is nonetheless an indicator of long-term changing interests. It is also striking that countries on the periphery have had a greater share of such “practically-focused” publications. This becomes evident when looking at English publications, where the United States and Scotland take the lead, countries that also was to take the lead in many respects when it comes to practical farming.

However, if we look at the deep, underlying currents that were changing the mentality of 18th century Europe, some of the most interesting facts probably emerge from the topics discussed in the literature. We can assume that this to some extent mirrors the ongoing discussions in the countryside at that time, at least among large-scale farmers and probably also among the peasants they were in contact with. Examples of such discussions include crop rotation, ways of improving soil and the potato. Probably this was not just a top-down intellectual process, but if literature was reflecting an emerging broad discussion, this is also a reflection of greater communication between different social strata in the countryside.

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