



Plant production on a Faeroese farm 1813-1892, related to climatic fluctuations

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Abstract

Journals written by a farmer family in the village of Norðoyri, Faeroe Islands have made it possible to obtain detailed information on important aspects of the operation of a Faeroese farm over a long time span. This article, covering the period 1813-1892, concentrates on the analysis of plant production, i.e. haymaking, grain and potato growing. While haymaking for winter fodder for cows was relatively stable, a new crop, potatoes, first planted in 1823, gradually took over the role of grain. This happened, it is concluded, because of its weather resistance, stability and more flexible harvesting period - seen in relation to grain. Furthermore, the journals contain information or proxy data that admits statements on climatic variation. It is shown that there have been three periods with good climatic conditions separated by three worse periods, within the time span considered.

Keywords

Faeroe Islands, Historical agriculture, Agricultural systems, Barley, Potatoes, Haymaking, Proxy data, Climatic variation.

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The discovery of several journals, as described below, from one of the farms at Norðoyri on Borðoy on the Faeroe Islands has made it possible to extract time series for both animal and vegetable production for most of the 19th century. This is a period hitherto only sporadically documented when it comes to exact data on the agriculture, which at that time was the main trade in the islands.

The journals cover the time span 1790-1892, out of which 1790-1812 are documented by books from a farm on Viðareiði, while the period 1813-92 belongs to the Up pistovu farm on Norðoyri. The information in the journals can, I envisage, be very helpful - to increase the knowledge of the material base and the mode of production in the so called old peasant society, - to give proxy data and information on possible climatic fluctuations before the registration of meteorologic data starts on the Faeroe Islands in 1867.

The purpose of this paper is to present the first results from these unique documents. I will concentrate on the period 1813-92 and on the plant production and try to establish nearly continuous data series for the production and yield of hay, grain and potatoes. The sheep-breeding is omitted here, but will be discussed in a later paper. The milking cows are, strange to say, never even mentioned in the journals. Supposedly because they belong to the daily, secure routines without appreciable variation. Indirectly,

the presence and importance of the cows can be estimated as the produced amount of hay is used as winter-fodder for the cows. As revealed in Guttesen (1999) milk generally amounts to about 50% of the caloric need of the population in 19th century Faeroe Islands.

Short introduction to the 'Matras Journals'

In 1790 the tenant Hans Albert Matras (1771-1799) in the village Viðareiði starts to write a journal. Each page is divided in two columns, and in one he notes different personal and family events and in the other he registers important things in relation to the farm, such as sheep taken in the out-field, haymaking and grain growing. He dies as a young man in 1799, but his brother, Samuel Michael Matras (1778-1857), continues and more and more details are added to his writings. Hansen (1975) reproduces details from the writings of H.A. Matras, but he is imprecise and omits without notice several lines here and there. When his brother takes over, Hansen mentions, quite incorrect however, that his notes in the journal are much shorter, and he reports just a few lines for each year. The truth is that S.M. Matras amplifies the notes and writes 5 to 7 pages with detailed information each year, but he soon omits the personal and familiar aspects

and concentrates on the farming. In 1802 S.M. Matras became sheriff for the area Norðoyar, and in 1813 he moved to the village Norðoyri as Royal tenant (copyholder) of the farm, called Uppistova. Here Hansen (1975 & 1980) stops to report the journals, but he mentions that they continue at Norðoyri. It was my hope to find perhaps a few more years with information, so I was absolutely astonished to find in the archives in Tórshavn and Klaksvík five more detailed journals covering not less than 79 years.

A short presentation of the journals including the period, writer, and place:

Journal nr. 1: 1790-1833. The first part is written by H.A. Matras on Viðareiði 1790-1799. Second part written by S.M. Matras 1800-1813, also on Viðareiði. Third part written by S.M. Matras 1813-1833 on Norðoyri.

Journal nr. 2: 1833-37. Written by S.M. Matras on Norðoyri. This must be a part the first journal that has been torn off by wear, as the text continues without interruption in the middle of a statement into this journal.

Journal nr. 3: 1838-48. Written by S.M. Matras, Norðoyri, except for the period November 1838 to April 1839 when his son Albert Josias Michael Matras (1815-89) takes over. Presumably his father was unable to write because he had had a stroke.

Journal nr. 4: 1848-58. The first part is written by S.M. Matras, but for shorter periods his son takes over in 1851, 52, 53 and 55. The last sentence was written by the then 79 years old S.M. Matras on November 22nd 1856. He died in 1857, but the son Albert J. M. Matras took over in December 1856 and finished this second part in 1858.

Journal nr. 5: 1860-68. Written by A.J.M. Matras on Norðoyri.

Journal nr. 6: 1874-1892. First part is a continuation by A.J.M. Matras of the previous book, but several years are lost because of wear and tear of the last and first pages of the journals. The second part, 1889-92, is written by Albert's son, called Samuel Michael (1863-1942) after his grandfather. This last part is written in Roman type but all the previous text is written in Gothic type. His journal notes becomes soon shorter and more summarily, and the last line is written on May 4. in 1892. The journals nr. 1-5 I found among unregistered documents at the regional archive, Føroya Landsskjalasavn, in Tórshavn while journal nr. 6 was found at the museum, Norðoya Fornminnisavn, in Klaksvík.

All the journals are written in Danish, not Faeroese, but with lots of 'faeroeisms', i.e. special words and concepts connected with the daily village-life at that time, e.g. he calls the sheaves for bunter after the Faeroese word *bundir*, even if sheaves are called neg in Danish.

The structure of a Faeroese village in the 19th century

A Faeroese village in 1813 consisted of one or more farms together with a number of houses. The infield around the farms, *bøurin*, was surrounded by of stone dyke, and here grain was grown for human consumption and hay was produced for winter feeding the cattle. Two decades into the 19th century, the journals inform us, a new crop was introduced, namely potatoes, that were well suited for the rather cold and moist climate of the Faeroe Islands. The outfield outside the dyke, *hagin*, was grazing area for the sheep flocks; in summer high up in the mountains, in winter in the lower areas or in the infield, after the hay had safely been brought home. The cattle grazed the village-near parts of the outfield from May or June to the beginning of October. During the winter they stood in the cowhouse and were fed with hay from the infield. The manure from the cowhouse was gathered in a dunghill. Each year a part of the infield was, after thorough cultivation and manuring, sown with 'Faeroese' barley, *Hordeum hexasticum*. The Faeroese village in past times is described by several authors: Svabo (1782/1957), Landt (1800/1965), Effersøe (1886), Hansen (1976 & 1980), Joensen (1980), Guttesen (1996).

Thus there was a fixed relation between the area of the infield, the produce of hay, number of cows that could be fed in winter, the gathering up of farmyard manure and the practicable area for grain. In this way the possible production of milk as well as grain were fixed. In the same way the number of sheep in the outfield was relatively stable, the traditional, experience-based number was known as the skipan, depending on the average grass produce in this area. The connection between the different area classes and the utilization of them is outlined and described in detail in Guttesen (1999;78).

When the population started to grow more steadily around 1800, which is shortly described in Guttesen (1970 and 1996b), the demand for extension of the cultivated areas, especially for the small-holders, *traðarmenn*, arose. This demand was in conflict with the old balance between the in- and outfield. If areas were enclosed from the outfield, the farmers would lose grazing areas for the sheep, and often the good low-lying areas that had special importance as winter grazing areas. In Guttesen (2000) I have argued for the view that most of the large farmers had a negative view on the movement to cultivate new infield areas for the growing population. This view is supported by Petersen (1963;32) who refers the dispute over the new settlement Slættanes on Vágur.

The reason for this farmer resistance was that sheep were

not only providers of mutton, but far more, is the base of prosperity, as woolen goods were the only products that for centuries could be sold to the Monopoly Trade. The small holders, *traðarmenn*, on the other hand wanted a piece of land that could yield one 'cowfodder', because one cow, or just one to share between two families, supplemented with some fishing and potato growing, meant that the caloric base for survival was secured for a poor family, cf. Guttesen (1999) and Brandt (1996;81).

The village Norðoyri

Norðoyri, or just Oyri as it is locally called, is located on the island Borðoy in the northern part of the Faeroe Islands. It is sited close to the eastern shore of the fiord Borðoyarvík that opens up in a SE direction and is surrounded by the lengthy infield. The outfield covers the SE half of the peninsula between Borðoyarvík and Árnafjørður. It descends rather steeply from the central mountain-ridge, 400 to 563 m high, and specially in the SE part there are steep slopes and this outfield is generally regarded as difficult to tend and dangerous, as many sheep are lost there in severe winters (Hansen 1980;149).

The with of the outfield is ca. 900 ha and the infield is today ca. 20 ha, but in the beginning of the 19th. century it was only ca. 10 ha. That is what is called the old infield, *tann gamli bøurin*. According to the traditional old land evaluation system Norðoyri was 24 *merkur* in the infield as well as in the outfield. This land evaluation system and its units is not the subject of this article, but I refer to Brandt (1996) and Thorsteinsson (1993) for further explanation.

The Uppistovu farm account for one third of the village, or 8 *merkur*, and had its lots scattered in different places in the infield as it appears from Figure 1. At that time the outfield was tended jointly by all 24 *merkur*.

In the following, different special old Faeroese units for hay, grain and potatoes are used. An outline of these are found in the following Table 1.

Grass and haymaking in the infield

85-90% of the infield was usually grassland that in August to September was cut. The grass was dried and then transported as hay to the barn to be used as winter fodder for the cows, that stood in the cowhouse approximately from October to May. The rest of the area was mainly cultivated with grain, Faeroese barley, and on smaller lots different species

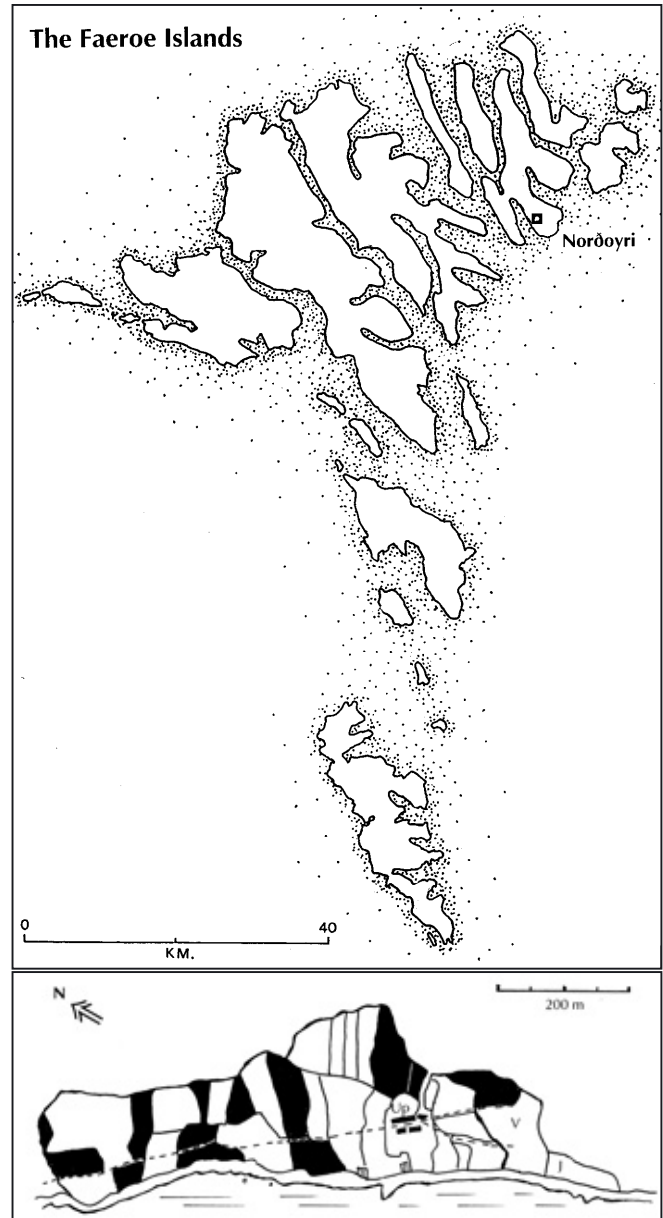


Figure 1: The old infield of Norðoyri. Black indicates lots belonging to the Uppistovu-farm, the dashed line the old path, and V Viðurbyrgi.

of swedes (*Brassica*) were cultivated.

There are two quantity units of hay that are used in the journals. When the hay is gathered and stacked on the infield it is counted as *stacke* (Faeroese: *sátur*) but when they are lugged into the barn they are counted as *böre* (Faer. *byrðar*) which literally means a burden of hay that a man is able to lug. The burden is a more well-defined unit than the 'stack', and often Matras recalculates the stacks, some of which are small, some large, into burdens, as he did in e.g. 1829 and 1830. This is shown in Table 2.

Table 1: Different units used in the historical Faeroese agricultural system. The locutions used by Matras are in italics in the parenthesis

Cow/winter fodder (<i>vinterfoder/vetrafóður</i>)	ca. 20 burdens or 1200 kg of hay
Burden (<i>böre/byrða</i>)	ca. 60 kg of hay
Stack (<i>stack/sáta</i>)	ca. 4 to 7 burdens, normally 5
Sheaf (<i>bundt/bundi</i>)	ca. 5 handful (<i>hølgje/hólgar</i>)
Barrel (<i>tönde/tunna</i>)	8 bushels or 48 knb.
Bushel (<i>skæppe/skeppa</i>)	6 knb. (ca. 17.5 l)
'Peck' (<i>kanbar/kannubari</i>)	3 quarts (ca. 3 liter)
Quart (<i>pot/pottur</i>)	approx. 1 liter

It is possible to extract data for the hay production for the period 1816-91. Only data for the years 1859, 64, 68-75 and 85-86 are missing. The Figure 2 shows the produce for each year. The general tendency is an increased production from around 1820 of 125 bd. to the years 1850-60 with a production of 165, or just 33%. Converted to units of winter fodder the number of cows that it could sustain increases from 6 to 8. After that peak it decreases slightly again. But, as mentioned in the introduction, the journals never inform us about the cows, neither the number nor the milk produce. However, there is one other useful source, the so called Loebner Tables, discussed Guttesen (1999 & 2000). These tables inform us that in 1813, the year when S.M. Matras took over the Uppistovu-farm, there were 4 cows and 2 young cattle on the farm. This is, in comparison to the other farms in this village, a bit on the low side. The question that is hard to answer exactly is: in what conditions did S.M. Matras take over the farm in 1813? Studying the reputation of his predecessor (Hansen 1980:160) it is indicated that the farm wanted an improving hand.

The question now arises: how was this increase in hay produce possible? The answers could be; increased area, better fertilising, melioration (better or more intensive cultivation), or a more benign climate. The possibility of addi-

tional areas could point at the *Viðurbyrgi*, cf. Figure 1, lying to the east of the old infield which Hansen (1980:148) suggests was included in the latter half of the century. But that is not the case. *Viðurbyrgi* is mentioned in the journals for the first time in 1828. I tend to ascribe a good deal of the general growth to better melioration that is connected with extension in the area sown with grain, cf. Figure 3. The positive effects of *reinavelting*, the special way of cultivating the infield which is explained below, and manuring in connection with grain growing is mentioned in the next section. But also better manuring as well as sustained skilful farming can be possible explaining factors.

The decreasing tendency, from 1850 to 1880 must, on the other hand, be seen in relation to the potato growing that required not only more space in the infield, cf. Figure 6, but also that the grass growing was poor in the years after potato growing, because the sward was damaged. Another piece of the outfield, today called *Millum Garðarnar* was included in 1880. The Journal for May 15th 1882 says: 'Started to plant potatoes for the first time in Nýe Gierde'. This must be

Table 2: Average size of haystacks in two random years

1829			1830		
1 st. á 8 bd.	8	2 st. á 7 bd.	14		
1 st. á 7 bd.	7	6 st. á 6 bd.	36		
11 st. á 6 bd.	66	8 st. á 5 bd.	40		
7 st. á 5 bd.	35	5 st. á 4 bd.	20		
4 st. á 4 bd.	16	2 st. á 3 bd.	6		
		2 st. á 12 bd.	3		
24 stacks	132	25 stacks	119		
avg. size	5.5 bd.	avg. size	4.8 bd.		

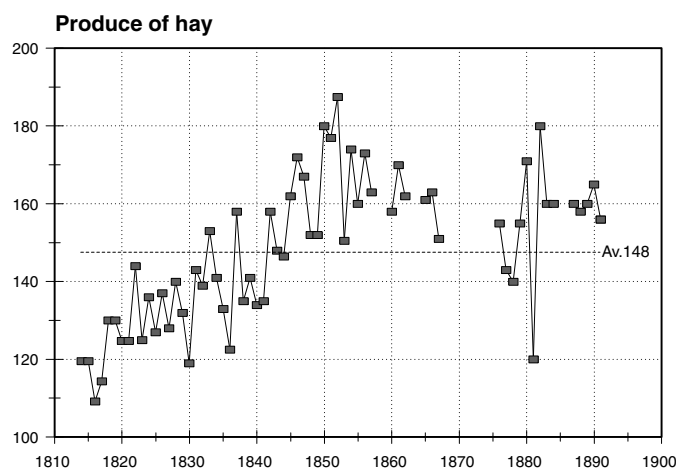


Figure 2: Produce of hay at the Uppistovu-farm 1814-1891, measured in burdens (cf. table 2). Average 148.

the same patch as Millum Garðarnar. But this extension can not have had visible effect on the production of grain and hay, as it generally took many years before such new areas were really productive, and still today the mentioned area is valued as poor and rather unproductive.

Grain growing

The rather special Faeroese way of cultivating the acre, called *reinaavelting*, is documented in the film 'Kornvelting í Gásadali' (Christiansen, Guttesen & Joensen 1986) and described in Christensen & Guttesen (1987), S. Christensen (1996), but also previous authors as Debes (1673/1965) Svabo (1782/1959) and Landt (1800) have good descriptions of this Faeroese method. When grain growing still was an integral part of the agricultural system about 1/7 of the infield was cultivated, manured and sown with barley, cf. Patursson (1966:59), Poulsen (1999:1218) and Rasmussen (1949:4). After one harvest the lot was overtaken by grass, and had good but diminishing yields of grass the following 7 to 10 years. In villages where the yield was generally low the periodical cultivation and heavy manuring was done more to benefit from the side effects: better grass yields the following years and a good supplement of straw for thatching.

The journals from Norðoyri contain precise information on the quantity of seed grain sown each year from 1819 to 1892, cf. Figure 3. Only the years 1859-60, as well as 1869-1874 are missing. The unit used in the journals is the *kannubari* or *kandbar* as Matras calls it, a measure for dry goods, cf. Table 1. The data for 1813 is not from the journals, but from the so called Loebner tables, Loebner (1815). This year only 1¾ bushel or 10½ *kandbar* was sown. An amount much less than any of the following years, and this must be set in relation to the fact that S.M. Matras had taken over the farm a few months before the sowing period. This fact could further sustain the assumption - as suggested above - that the farm was not in satisfactory condition when overtaken. The sown amount is slowly increasing from 25-30 *kandbars* in the beginning of 1820ies to a maximum in 1846 with 50.

Then it decreases to a low in the end of the 1870s followed by a short recovery in the late 1880s. From year to year the amount sown varies up to 25 %. The general decrease from the mid 50ies can be seen on the background of the following section on the potato growing, cf. Figure 6. The potatoes take over areas from grain in the infield. There is possibly a indirect link to the introduction of free trade in 1856, but this connection is not documented in the journals.

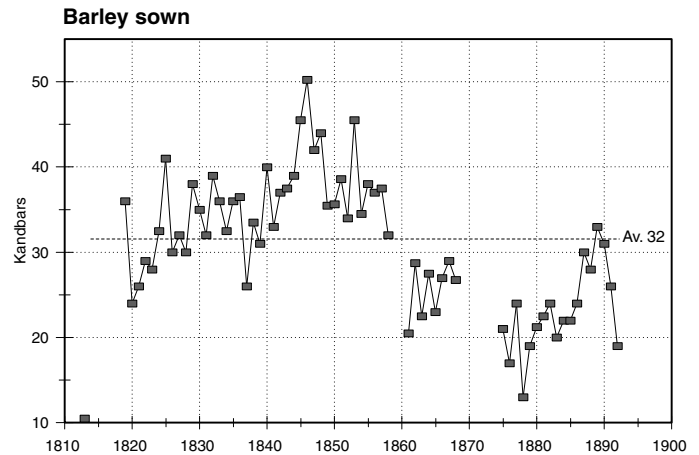


Figure 3: Barley sown 1813-1892, in kandbars. The information on 1813 is taken from the Loebner Tables. Average 32.

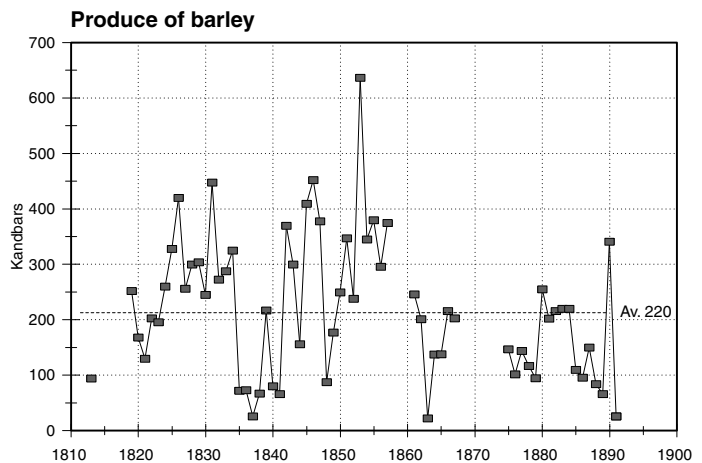


Figure 4: Produce of barley 1813-1891, in kandbars. The information on 1813 is from Loebner. Average 220.

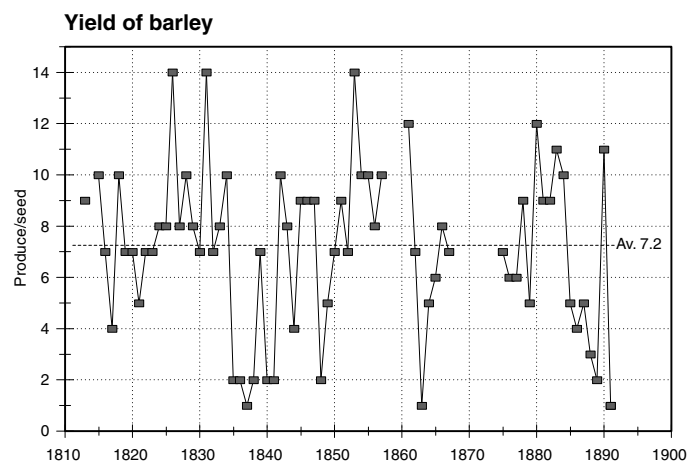


Figure 5: Yield of barley (quantity harvested/seed), 1813-1891. Mode of calculation is explained in the text. Average 7.2.

In some years, 1824 and 35, the farmer buys seed grain in Svínoy, which is considered as one of the best places for grain growing in the Faeroe Island, Hansen (1973:24). The reason for this purchase of seed could be an unusual poor harvest the preceding year. But this can not be the full explanation. In 1823 the grain yield was on the average and in 1834 the yield was clearly above average, cf. Figure 5.

It is more difficult to find a good and exact measure in the journals for the quantity of grain produced. So the values in the time series in Figure 4 are compiled and calculated in different ways, as explained below. Usually he notes how many sheaves are harvested, but the sheaves can have many or few, bad or good kernels in the ears and is not an unambiguous yield measure.

Until 1857 the scribe has a short characterizing comment on the general quality of the harvest and grain, using words like: nearly the best, good, above middle, partly bad. S.M. Matras writes in 1826 on September the 26th: *'The quality was overall rather good and for the main part really good.'* The early date for finishing the grain harvest should be noted. In contrast to this, in 1838 on October the 11th he writes: *'The quality was inferior, 1/3 was barely average, 1/2 just about usable and 1/6 was worse.'* One of the worst years, 1864, the yield (*fold*) was only 1 (harvest/seed), and half of the produce was usable for cow fodder only, the journal tells us.

From 1856-92 the results are given in barrels of dried grain, so in this period there are no problems to calculate the yields per units of seed. Fortunately, in 1856-7 both the number of sheaves, the descriptive comment on the quality, as well as the amount of dried grain are given. This allows us to attach some quantitative measures to the qualitative descriptions. In 1856 the quality was 'near the average' and the yield is noted to be 8 times the amount of seed. In 1857 it was 'very good' and the yield is 10 times the seed. Using these figures as reference, the yield is calculated for the years without harvest data in barrels. This is, of course, a calculation involving qualitative statements and are as such not exact numbers. But surely the main tendencies can be assessed.

The results, given in Figure 5, are showing extreme variations. The average yield calculated from these figures is 7,2. And this is not far from the average, mentioned in the journal that point out 8 to be the conventional average. Of these 67 years 10 are extremely bad with a yield less than 2,5. But 8 years can be said to be very good with yields on 11 or above. Using the yield figures it is possible to compute the figures for the total produce for the years missing in the journals, and these are included in Figure 4. The variation

from year to year is striking. In good years the Matras household gets about 400 kandbar, in bad years a fifth or less. This, once more, underline that grain was not the basic food provision as milk was. In bad years the provisions had to be remedied with imported grain from the Royal Monopoly, after 1856 from private merchants.

Potato cultivation

The first experiments with potatoes in the Faeroe Islands were, according to Madsen (1999:85), made in 1758 but without success. But gradually the crop gained footing, and Svabo (1782/1957; 573) mentions potato growing in 5 vil-lages. He tells us that the crop is new in the country, but the conservative farmers are very sceptical of it. One of the arguments against it is that after one year with potatoes the regeneration of the grass on the patches slower than after a year with grain, cf. Poulsen (1947:47), Poulsen et al. (1998:623) and Joensen (1980:31). On the other hand, Svabo is well aware that potatoes are a more steady and secure crop than the grain (p. 566), a statement that will be corroborated later in this article.

The first time S.M. Matras mentions potatoes is in 1820 when he, on April the 22nd, notes: *'Potatoes planted, one full bushel'*. Unfortunately he notes nothing of a potato harvest that autumn. He tries again the next year, but only with 3/4 bushel. This time he seemingly was successful with the crop. On October the 22nd he notes *'Lifted potatoes and got circa 4 bushels'*. The yield was 5.3 times the seed.

So this is evidently the documented story of the beginning of potato growing on the Uppistovu farm.

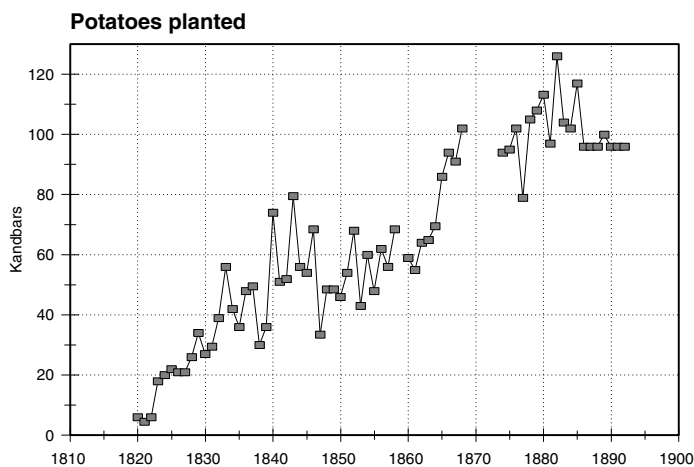


Figure 6: Potatoes planted 1820-1892 measured in kandbars, cf. Table 2.

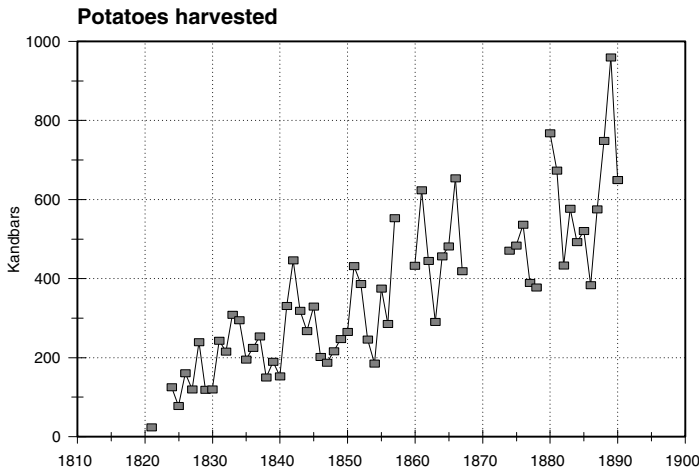


Figure 7: Produce of potatoes, 1821-1890.

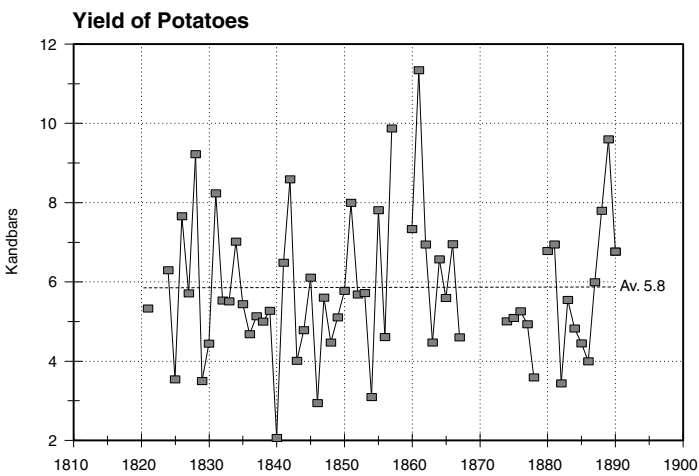


Figure 8: The yield of potatoes 1821-90. Average 5.8.

As shown in Figure 6, the potato planting increases rather steadily from the hesitant beginning with 1 bushel in 1820 to a rather steady level in the period 1830 to 1855-60 when it oscillates around 50 kandbars. After 1860 the level rises to about 100 kandbars of potatoes planted each year. In the last 7 years of the journals it seems, with one exception, as if the standard amount of potatoes planted was 96 kandbars or just 2 barrels. It can also be interpreted as less carefulness and precision in keeping the journal before it at last is abandoned.

Concerning the potatoes, it is easy to quantify both the produce and the yield (*fold*), as Matras measures the produce of potatoes in the same measure as the planted amount, namely in kandbars. The produce is shown in Figure 7 with a few data lacunas due to some omissions and missing pages in the journals. The total produce is increasing, not unex-

pected as the potatoes planted increases. But not quite in steps that follow the planted amount. This deviation is due to the fact that the yield varies a lot and the steps that perhaps could be expected, are blurred. But total yield also fluctuates considerably from year to year. The yield (quantity harvested/planted) is shown in the following Figure 8. The average yield for potatoes is lower than that for grain, but the variation is smaller.

Proxy data and climatic variations

So far, this article has described and quantified the plant production. But as plant production depends on the climatic condition in the growing season from April to October, selected data series can perhaps tell us something new about the weather and perhaps climatic variation on the Faeroe Islands. The most obvious proxy data, In assume, are those on the yield of grain and potatoes, as they are more sensitive to variation in temperature and insolation than grass. To accentuate the long term tendencies the yearly figures from Figure 5 and 8 are transformed into 10 years moving averages, and shown in Figure 9. Due to the way the spreadsheet calculates the figures, the first and last years must be read with care as they are based on a shorter period than 10 years.

The most striking feature is the way that the curves covariate for most of the time. The exception is the period from ca. 1875-85 when the curves drift apart in opposite directions. Grain yield has, as already mentioned, a higher average level as well as greater fluctuations than the curve for the potato yield. The maxima and minima are nearly coincident, and this is assumed to support the hypothesis that

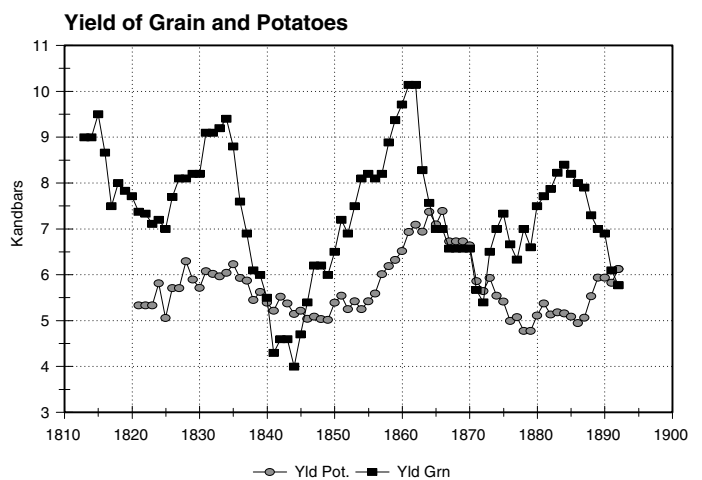


Figure 9: Ten years moving average for the yield of grain, 1813-1891, and potatoes, 1813 from Loebner.

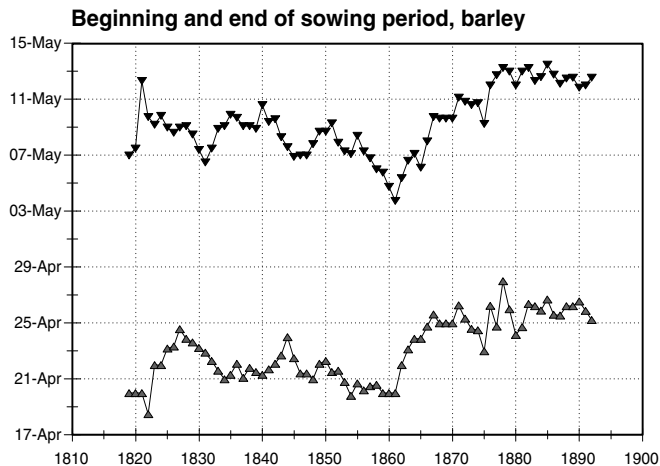


Figure 10: Beginning and end of the sowing period for barley, 1819-1892. 10 years moving average.

there is a common climatic mechanism behind. Some more recent observations confirm the variable condition for agriculture on the Faeroe Islands, and this variability is assumed also to have been the case in the 19th century. Haahr (1996:91) says that the crop quantity varies with the degree-days. He reports observations from the Agricultural Research Station at Kollafjørður. 1993 had a low sum, and 1988 a high midsummer degree-sum, above 5°C, the difference between these years being more than 40%. A good yield of grain demands first of all a good, ie. relatively dry and warm summer and a dry harvesting period in the autumn.

To sum up: The information from the journals indicate that there have been good grain periods with maxima in 1838-39, 1861-61 and 1883-85 separated by poorer periods with minima in 1825, 1841-44 and 1871-72.

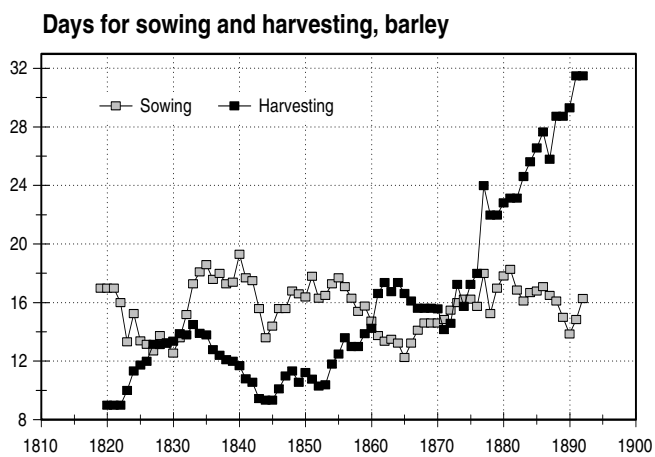


Figure 12: Days used for sowing and harvesting barley, 1819-1892. 10 years moving average.

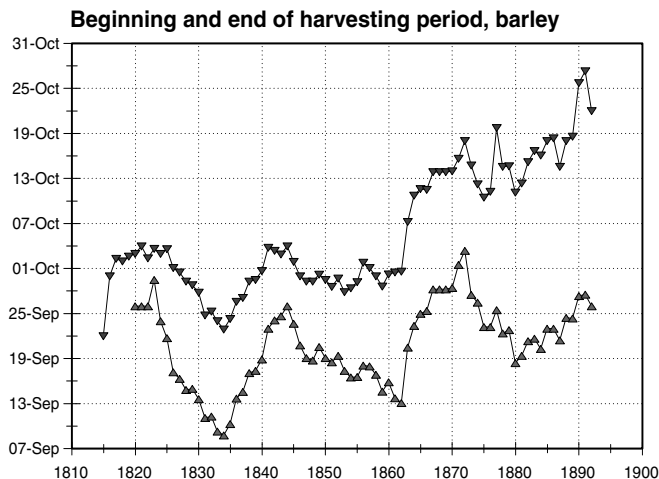


Figure 11: Beginning and end of the harvesting period for barley, 1815-1890. 10 years moving average.

The journals also contend figures for the dates of the beginning and end of the work in the infield in relation to the plant production. I will restrict this presentation to the figures related to the sowing and harvesting of grain, as I assume that these are the most sensitive data to climatic conditions. The first argument for this assumption is that the work with the potatoes always follows after the work when the grain sowing is finished, and in the autumn the final lifting of potatoes can be postponed to November, December or even January or March, as the potatoes are not spoiled when lying unlifted in the soil, and for that reason the potato lifting has no hurry, as has the grain harvesting.

The variations in the beginning of the sowing period are not great, only 4-5 days, but it seems as if that in the latter half of the period sowing begins generally a few days later. The gap between the beginning and end of the sowing period is

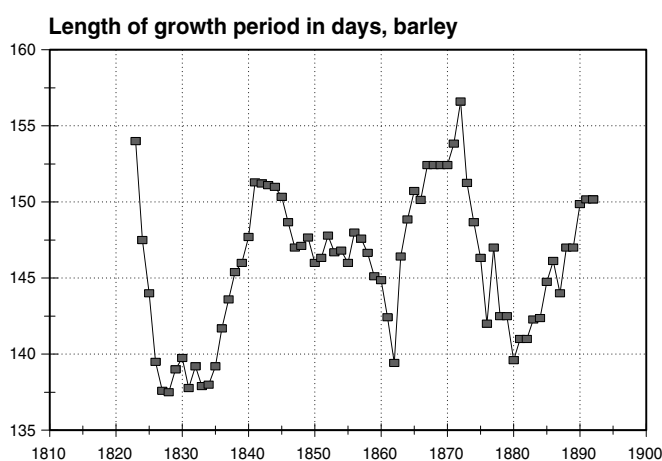


Figure 13: Length of the growing period for barley, 1823-1890. 10 years moving average.

relatively constant, generally 14-18 days, cf. Figure 12.

On the other hand the beginning and end of the harvesting period, cf. Figure 11, are much more variable. If the late summer and early autumn is cold and wet, then the growing and ripening period is prolonged, and some years the grain does not ripen at all. The overall variation in the beginning of the grain harvest goes from the first week of September to the first week of October, but as the finishing day usually covariates with the beginning day, cf. Figure 11, the length of the harvesting period does not vary much, only 9-14 days, but something remarkable happens in last ca. 25 year period when the harvesting period increases from around 14 to 26-28 days, cf. Figure 12. As it is not because of labour shortage, the population in the village as well as in the Uppistovu farm is not less than before, the only plausible explanation can be that the weather conditions in the autumn for the period ca. 1875-1890 has deteriorated, being colder and wetter.

The variation in the length of the growing period, Figure 13, clearly has a shape near to that of the beginning of harvesting period, and furthermore there is a inverse relation to the grain yield, Figure 9. The short growing periods in 1827-34, 1861-62 and 1880-83 are roughly corresponding to periods with good yields in Figure 9.

The hay could also be a good indicator for variations in the summer weather. The journals give the quantities cut each year, and the figures are even found for the earlier period from 1790-1808. But the figures have to be cleaned for the variation in the area that is cut each year, and that requires further examination.

Other proxy data on climatic variations

It shall shortly be mentioned that the Faeroese statistic series (1709-2001) on catches of the pilot whales also show characteristic variations, that can be related to the following of their food, mainly the squid (*Todarodes sagittatus*). Referring to Figure 2 in Joensen & Zachariassen there is seemingly a correlation between good whaling years and poor grain years. The following periods have relative *maxima* for whales, with the *poor* years for grain in parentheses: 1820-22 (1823-25), 1840-42 (1841-44), 1870-75 (1871-72). Likewise the minima years for whaling and *good grain years* seem to correspond: 1825-35 (1831-34), 1860 (1861-61), 1884-88 (1883-83). Further statistical analysis must be done to investigate this interesting topic.

Conclusions

Exact data on plant production, from a fairly large and well-run farm, Uppistova at Norðoyri, Faeroe Islands, for a relatively long period in the 19th century are, for the first time, presented and discussed. This article concentrates upon the plant production, and the produce of hay, grain and potatoes are outlined as well as the principal aspects of the yearly as well as the long term trends are shown. Potatoes are introduced in 1820 and it seems as they from about 1855 and onwards take over much of area that grain occupied before. Furthermore, a first attempt is made to relate the plant production to climatic changes. The yield of grain and potatoes, that have about the same variation rhythm, reveal good summer conditions around the years (1815), 1834, 1861 and 1884 separated by poorer periods. Furthermore a similar, but inverted, variation in the number of pilot-whales caught is indicated.

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