Dairy farming in Sweden between the late 1920s and 1980

Carin Martiin, Associate Professor, Agrarian and Rural History, Department of Urban and Rural Development, Swedish University of Agricultural Sciences, Uppsala, Sweden. carin.martiin@slu.se

Dairy farming has long been a natural part of Swedish agriculture, providing milk, butter and cheese, meat, manure and offspring as well as temporary or regular cash income. By the mid-nineteenth century the enlarged international butter trade became important for the Swedish dairy sector that followed in the footsteps of Denmark, the even more successful neighbour in the south.¹ Between the early 1870s and the outbreak of the First World War the number of dairy cows increased about 40 % at the same time as the total production rose approximately 150 %.² This expansive stage did not include all smallholders and farmers and can rather be described as a period of polarization between purposeful production for sale on basis of modern resource requiring methods of production on the one hand, and poor subsistence animal husbandry on the other.³

Gradually this stage was transformed into a third more homogeneous phase with increasing degrees of commercialization, which gave urban dwellers got access to fresh milk and other dairy products via an expanded chain of dairy plants, railways and retailers. At the same time increasing shares of the farm households got access to regular cash income. Still in the early 1920s, when this study begins, only one fourth of the holdings were regular dairy suppliers whereas a majority used their often limited production for subsistence purposes or small-scale farm house production for sale.⁴ At this point of time a majority of the Swedish population lived in the countryside, despite industrialization and urbanization since about the 1860s, and would do so until the mid-20th century when Sweden reached the crossing point when the urban population exceeded the rural.⁵ The dairy expansion provided an important source of rural development in the 1920s, 1930s and first half of the 1940s, decades that saw a tremendous increase in total production and quantities supplied to dairies, in parallel with high expectations on consumers to eat and drink as much as ever possible of milk, cream, butter and cheese.⁶ The high level of production and problematic international market in the early 1930s brought about a system of regulation that guaranteed a lowest price to farmers, at the same time as the former export ambitions were given up, contrary to Denmark.⁷ The

¹ Martiin, C. in Antoine (2015, forthcoming).

² Historical Statistics II, Agriculture; SOU 1930:4, p. 2.

³ Martiin, C. 2005. Gradually the gap was closed and by the mid-twentieth century Swedish dairy production can be described as comparably homogeneous with regard to feeding and work routines.

⁴ Martiin, C. 2005; Statistical Yearbook of Agriculture; Official Dairy Statistics 1923.

⁵ Historical Statistics I, Population, Table 14, p. 66; Dovring 1988, p. 39.

⁶ The association *Mjölkpropagandan* (The Milk Propaganda, known from the US, Canada and many European countries) was founded already in 1923 in order to encourage the consumption of the increasing total volumes.⁶

⁷ The system of regulation was applied on grains, sugar, milk and meats. The intention was to guarantee a lowest price and that the system should be temporary. In reality the system came to be maintained for about sixty years, until just a few years before the Swedish membership of the European Union in 1995.

expansion continued also with the regulation system in place, which was criticized later on when agriculture and the entire economy had recovered, but welcomed when the Second World War approached.

Soon after the war a fourth stage in the history of Swedish milk production was introduced. The postwar trend was characterized by fewer dairy farmers and reduced numbers of dairy cows. When 1980 is compared with the mid-1940s one finds that 36 % of the dairy cows remained, 15% of the dairy suppliers and 75% of the total production of milk. At the same time the remaining dairy herds were somewhat bigger and the cows yielded twice as much.⁸ The day when the dairy herd left the farm was often a hard day for the members of the farm household and the local society. The process of change in dairy farming has, and still is complained, and talked about in terms of lost rural idyll, which for many people is symbolized by grazing dairy cows in the Swedish summer landscape.⁹

The disappearance of many dairy herds during postwar and later times contrasts the 1920s, 1930s and 1940s when production of milk for sale was highlighted as the backbone of Swedish agriculture, the heart of the farm, the engine of the rural economy, and as a national responsibility. During these decades dairy cattle were found at almost all Swedish farms and the production was rather due to what was possible to produce at the arable and pasture area at each farm, rather than to the total domestic demand for dairy products. The expansion of the dairy sector was of great importance for the development of the Swedish society and should not be underestimated, but it led also to later problems with overproduction and accompanying pressures on farm households and the countryside at large.

The intention with this paper is not to deal with all these aspects but to provide an overview of varying kinds of quantitative changes in the milk producing sector between the early 1920s and 1980. Some statistical figures from the whole period but many issues have had to be dealt with in somewhat shorter periods.

Total production and volumes to dairy plants

Early figures on the total Swedish milk production are scattered and approximate until 1938 from which a more reliable and continuous material is available. The total 3.3 billion kilos that were produced in 1911/13 are followed by 3.4 billion kilos in 1923 and 4.1 billion kilos in 1927. The production went down during the First World War when a combination of harvest failures in 1916 and 1917 and war in Europe (Sweden was saved from both WWI and WWII) reduced the stock of dairy cows with about 25%. In 1938 a new statistical series begins and suggests a peak by 1938 when totally almost 4.9 billion kilos of milk were produced. The lowest quantity was reached in 1971, 2.9 billion kilos, which is the same level as today.¹⁰

When the continuous population increase is taken into account, from 6.0 to 8.3 million people from 1923 to 1980, the total production per person rose from 566 kilos per person per year in 1923 to record high 771 kilos in 1938, and then decreased to 685 kilos in 1950, 524 kilos in 1960

⁸ Statistical Yearbook of Agriculture; Statistical Yearbook of Sweden.

⁹ Grazing cattle in the summer landscape are still considered important and was for example highlighted in an editorial text in Sweden's leading newspaper *Dagens Nyheter*, August 16, 2015, p. 2.

¹⁰ Figure for 2014 according to 'SOS Statistiska Meddelanden JO 48 SM 1507', Jordbruksverket.

to 363 kilos in 1970, and the rose to 417 kilos in 1980.¹¹ The figures include use in kind and deliveries to the dairies, which means that the marketed average per person was lower. Of the marketed quantities substantial but varying quantities were consumed as fresh milk, for example about 25% just before the war, more than 40 % during the war (milk was not rationed), a little more than 30% in the early postwar years, and again about 25% in the 1960s.¹²

The total production of milk long exceeded the quantities supplied to dairy plants. As shown in Figure 1 less than half of the total production was supplied to dairy plants until the 1930s, two thirds befor the outbreak of the Second World War, three fourth by the end of the war and about nine tenth by the mid 1960s. Thereafter the gap between production and supply were marginal.



Sources: SOU 1930:4, Table 1, p. 2; Statistical Yearbook of Sweden, yearly volumes.

The gap between the total production and the supplied quantities was partly due to the number of milk producers that were or were not associated to a dairy plant, partly to dairy suppliers' decisions on how much to deliver and use in kind, respectively. In 1927 only 40 % of all farms with dairy cows were also dairy suppliers. The share increased to 88 % in 1944, probably explained by a combination of: the guaranteed lowest price that was part of the aforementioned price regulation system, a strengthening of the dairy cooperative movement, and the Swedish authorities' thorough organization of the food supply during the Second World War.¹³

Figure 2 illustrates the number of dairy suppliers from 1913 to 1980 and the peak by the mid-1940s, when people at 271 000 holdings produced for dairy plants, to compare with a total population below 7 million people. Almost everybody in the countryside lived close to farms and the sounds, smells of dairy cattle, and to the daily rhythms of milking and feeding the animals, in the summer time accompanied by the moving of the dairy cows to be milked and then let out again. By this time 95% of the suppliers delivered their milk to dairy cooperatives, to compare with 81% in 1937, 73% in 1932, 69% in 1927 and about the same in 1913, 68%. Private dairies had dominated in

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Figure 1. Total Swedish milk production and shares supplied to dairy plants, 1911/13 – 1980.

¹¹ Historical Statistics I, Table 4.

¹² Statistical Yearbook of Sweden.

¹³ Statistical Yearbook of Sweden; Statistical Yearbook of (Swedish) Agriculture; SOU 1952:49.

the 19th century but were, as just said, almost the only actors by the mid-20th century when dairy farming can be described as a kind of people's movement that combined everyday work and engagement in the cooperatives.¹⁴ Figure 2 illustrates the increased number of dairy suppliers until the mid-20th c, and the then following decline that is further discussed later on.



Sources: Official dairy statistics 1913-1928; Statistical Yearbook of Sweden 1929-1980.

Figure 2. Number of dairy suppliers in Sweden 1913-1980. The total number of milk producers was about 300 000 (at least 2 ha arable land) or 400 000 when including holdings with less than 2 ha.

As regards the amounts of milk that were used in kind, this is illustrated by the gap between the upper and lower graph in Figure 1, which includes the use in kind by both dairy suppliers and not dairy suppliers. The difference between the graphs mean that Swedish farming long combined commercial and subsistence production of milk. It means also that the dairy plants dealt with parts of the production only and would otherwise have had even bigger problems with surpluses, for example in the early 1930s. Moreover the long half-commercial approach meant that the farm economy was not fully exposed to changes in the milk price. Quantities used in kind are difficult to specify exactly, but a study of the 1950s and 1960s suggests the proportions given in Table 1.

¹⁴ Official Dairy Statistics (about 1913); Statistical Yearbook of Sweden 1929, p. 94, (about dairies in the 19th century) and Statistical Yearbook of Sweden (about shares to cooperative dairies).

Year	To dairy	Use in kind or small-scale sale				
	plants	Direct	Farm household and	Farm house made	Full milk as	
		sale	employees	butter and cheese	animal feed	
1952	83	4	8	1	4	100
1958	86	3	6	0	5	100
1961	88	3	5	0	4	100
1964	90	1	4	0	5	100
1967	92	1	3	0	4	100

Table 1. The use of the total production of milk in Sweden 1952-1967 including sale and use in kind. Source: Jordbruksekonomiska meddelanden Januari 1969, p. 7, Table 2.

According to Table 1 the direct sale went down from 7 to 1 % of the total volume, which is suggested to have been related to changes in consumer preferences, generation shifts and fewer customers in the neighbourhood. The about halved consumption in the households of farmers and farm labour may have been due to fewer people in the farm household and fewer employees. At the same time farm house production of butter and cheese went down from about 10% to almost nothing, although some may have remained. This decline is suggested to have been due to changes in contemporary consumer behaviour, preferences for standardised production in dairy plants, and that older generations had ended up with farm house production. According to the referred investigation the use of full milk for farm animals went down from about 7 to 4 %, which might be explained by reduced fattening of calves and/or increased use of milk powder to young calves.¹⁵

Number of dairy cows

The total production and its changes over the years were of course related directly to the total number of dairy cows and the sum total of their individual yearly yields. As shown by the lower graph in Figure 3 the number of dairy cows varied slightly up and down until around 1930 when the total number peaked at about 2 million heads. The dip in the early 1940s is explained by bad harvests in combination with the ongoing war, which made the government initiate culling out of a limited number of dairy cattle. In 1942 the number of dairy cows was 14 per cent lower than in 1939 and the average yield per cow only 11 per cent below, which might have been related to slaughter of the lowest producing cows. The yields of feed grains and hay did not reach ordinary yields until 1944 and 1945 (see Figure 7), but the yields per cow began to rise already in 1943 (Figure 3). The dip in total production already in the late 1940s mirrors the dry summer in 1947, although the crop yields did not drop as badly as in the early 1940s.¹⁶

¹⁵ Jordbruksekonomiska meddelanden 1969, January, p. 7.

¹⁶ Weather: Räkenskapsresultat från svenska jordbruk, 1919-1952. Total milk yield:... No of cows...



Sources: Statistical Yearbook of Sweden; Statistical Yearbook of Agriculture.

After a short increase in the total production in the late 1940s both total production and number of dairy cows declined successively in the 1950s and 1960s after which total production rose substantially and the number of dairy cows was stabilized around 650 000 dairy cows (temporarily though).¹⁷ According to Figure 3 changes in total production and in number of dairy cows followed different patterns. While the number of animals was comparably stable during the first studied decades and then declined successively, the changes in total output were more irregular, albeit following a strong upward trend from around 3 to 5 million tonnes and then similarly downward trend back to around 3 million tonnes. When studying single years one has to take account to changes in both numbers and average milk yields per cow, which in turn calls for attention to the eventual impact of god or bad harvests that is discussed below.

Yields of hay and other feed

The major part of the Swedish dairy production was based on domestically produced feed, primarily hay, but also feed grains and eventual root beets, peas, etcetera. Moreover the about four month long grazing season was greatly influential, and to some extent the harvest of straw from spring grains, which was long part of ordinary feeding. Feed concentrates were imported but was, with some exception during the 1970s, used more sparingly than after the here studied time period.¹⁸ When comparing crop yields (Figure 4) and milk yields it should be remembered that the milk was produced on basis of feed from the former year. The total production of milk in for example 1938 was in spring 1938 based on feed from the harvest of 1937, of the grazing conditions during the

Figure 3. Comparison between total milk production (also in Figure 1) and number of dairy cows.

¹⁷ Statistical Yearbook of Agriculture.

¹⁸ The statistical figures on import of feed concentrates are complicated and difficult to apply and have therefore not been included in this study. It can however be assumed that the use of feed concentrates was higher in years with bad harvests and vice versa, especially in dairy herds in official milk control (mentioned later.)

summer 1938, and in the authumn 1938 on the new harvst that year. This means that one good and one bad crop year could compensate each other as regards the production of milk. In case of two good or bad years in a row the links between crop and milk yields can however be obvious.



Source: 'Räkenskapsresultat från Svenska Jordbruk', yearly reports on harvests 1924-1952.

Figure 4. Variations in the harvested quantities of oats and barley (when cultivated together as *blandsäd*), of grass and clover to be harvested (not the production of grazing), and of straw from barley and oats, which was regularly used in Swedish cowsheds during the referred time period.

A first observation from Figure 4 is that the harvests differed substantially from year to year, at most 25 % up or down, which theoretically could make 50% difference between two years. Normal variations of 10 % up and down as a common variation to be handled. According to Figure 4 the time period 1923 to 1952 includes some years where harvests and milkyields were clearley related, such as the during the four years 1940-1943. The more limited decline in 1947 may have been managed with help of an abundanty hay harvest in 1946. In 1949 the yield was as high as 2786 litres per cow, following good harvests in 1948 and 1949. In addition to the national averages it should be remembered that Sweden is a vast elongated country where one part can enjoy a good crop season at the same time as another part suffers from very drought or too heavy rains. In spite of this reality the average milk yield per cow was more than doubled within the studied time period.

Doubled milk yields per cow

The yield per cow rose, from in average almost 2000 kilo per cow and year in 1923 to 2200 in 1927, when the total production reached 4 million tonnes, and increased to about 2500 kilo per cow and year in the late 1930s, when the total output peaked at almost 5 million tonnes.¹⁹ As demonstrated in Figure 5 the average per cow then remained at this level until 1948, but reached about 2850 kilo per cow and year in 1949 and 1950. Thereafter followed another plateau until 1960 after which the

¹⁹ The averages have been calculated as the total quantities divided by the total number of dairy cows (Statistical Yearbook of Sweden; Statistical Yearbook of (Swedish) Agriculture).

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average rose year by year until another plateau in the late 1960, after which the yields increased continuously throughout the studied time period when the average was 5000 kilo per cow per year.



Source: Statistical Yearbook of Sweden; Statistical Yearbook of Agriculture.



As regards the concrete changes behind the huge increase in total production from 3.4 billion kilo to almost 5 billion kilo in the 1920s and 1930s this was partly the result of more cows per dairy herd. About 200 000 more animals, or in average 0.67 more cows per herd, generated about another half a million tonnes. Even more influential was the improved yield per dairy cow. A rise from 2000 to 2500 kilo per cow per year meant another million tonnes of milk. Taken together this 0.5 and 1 billion litres can explain the increase. In the small scale the rise from 2000 to 2500 kilo per cow was a matter of 1.6 kilo more per day, or 0.1 kilo per year between 1923 and 1938.

According to Figure 5 the average yields increased comparably slowly in the 1920s and 1930s but rapidly in the 1960s and 1970s. The averages included, of course, lower but also substantially higher individual yields, especially during the early years, due to the formerly claimed increased homogenization in methods of production. As example exceptionally good dairy cows of the then most common red breed SRB had in the 1930s been reported to yield 6000-8000 kilos and the second most common black breed SLB even up to 8000 kilos, provided excellent feeding and otherwise best possible conditions.²⁰ At the same time levels below 2000 kilos most probably occurred in other herds. Among other explanations for the changes in the yield per cow were the introduction and spread of artificial insemination and other improvements that followed with the thereby increased contacts between farmers and advisers.

²⁰ Nanneson, L. & Zachrison, A. (1935, edition from 1940), pp. 45 and 43; Helmenius et al, 1959, p. 393;

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Artificial insemination, breeds and changes in work routines

Artificial insemination (AI) is reported to have been started in practice in 1943 and to have been used for approximately about 25% of the dairy cattle in 1950, 50% in 1960 and 80 % in 1973. The spread of this method did at the same time encourage more of advice and control of feeding, fertility and animal health, primarily in order to improve the breeds but with substantial impact on the production as well.²¹ Moreover the animal health situation improved with regard to diseases such as tuberculosis and outbreaks of foot and mouth disease, while other problems such as mastitis may have increased. As regards breeds, the dairy cattle were dominated by the SRB ('Swedish Red Breed' or 'Swedish Red Cattle') and the SLB (Swedish Holstein) of which the latter increased over time, although the former still dominated in 1980. The domestic SKB still played a role in the 1960s but then declined, as well as did other local breeds.²²

Swedish cowsheds were generally electrified in the 1920, 1930s or 1940s, through which electric light and ventilation were made possible.²³. Another influencing aspect on milk yields and the dairy economy was the recruitment percentage increased over time, from about 15 % in the early 19th century to about 20% in 1960, 30% in 1970 and even higher in 1980. This brought about costs for breeding of heifers, which increased in numbers at the same time as the dairy cows declined.²⁴

Furthermore the general work routines changed over time. The work was of course planned individually but it is relevant to expect that most farmers followed a general model, a model that was influenced by local habits and instructions in journals and books, forwarded by advisers and neighbours. According to books from the early parts of the studied time period, considerable efforts were made to use the avilable feed as well as possible. Grooming was also considered important, as well as handling and training the cattle, including the bull.²⁵ Reaching the 1950s labour became a more crucial resource. Bigger farms with employed labour in the cowshed then had to orgaize the work in line with new regulations on working hours (limited to 6 in the morning to half past five in the afternoon). By this time increasing numbers of male and female farmers did all the work in the cowshed, and organized this in one shift in the early morning and one in late afternoon, to get time for arable farming and forestry in between.²⁶ In both cases shorter time was spent among the animals, limited to urgent issues whereas less time was available for extra undertakings such as grooming and sweeping floors. In the 1960s and 1970 time saving efforts were heavily emphasized, in terms of time and motion studies and calculations on minutes per animal and day. In parallel

²³ Martiin, C. (2015, forthcoming).

²⁶ Helmenius et al 1959, pp. 119-120.

²¹ Ekesbo et al, 1969, pp. 104 and 106. In 1927 about 13 % of all dairy cows in Sweden were subject to the official milk control system (charged and voluntary), 18% in 1937, 27% in 1954/55, 37% in 1965, 56% in 1975 and 60% by 1980 (Statistical Yearbook of Sweden; Statistical Yearbook of Agriculture).

²² The SRB originates primarily from Red Shorthorn and Ayrshire that were succeeively crossed in with domestic breeds during the second half of the 19th and first half of the 20th centuries, whereas the SLB had its roots in the Netherlands (Helmenius, 1959, pp. 395-396; Danell et al, 1979, p. 142.

²⁴ Statistical Yearbook of Agriculture; (Reference on recruitment percentages: to be added.)

²⁵ 1907, Carl M Peterson, Mjölk-bok för småbrukare; Högberg & Helger, 1923 pp. 72 and 76; Nanneson & Zachrison 1935 (ed. from 1940), pp. 43-70.

feeding and other routines were simplified.²⁷ The stress on time saving was later replace by a trend of intensification and, again, longer work days in the cowshed, accompanied by high ambitions for high milk yields per cow, such 7000 kilo per cow per year, obtained through more grains and concentrates and high nutritious silage, carefully fed three or four times a'day.²⁸ Breeds and breeding, feeding, and work routines did not only vary over time but with farm size and regions as well.

Changing structures at farm level

Dairy cattle was a matter of course at almost all farm holdings until the mid 20th century. Tha share of farms without dairy cows was as low as 2% in 1927, 3% in 1932 and 1937, 5% in 1947 and 10% in 1956. Thereafter the share without dairy cows declined more rapidly and was 30 % in 1966, almost 40% in 1970 and more than 60% in 1980. Until around 1950 the changes in number of cows and yields per cow were taking place without much direct involvement by the authorities.

The various kinds of changes had, however, long been discussed, and some were registered in the official statistics, but the general attention increased when Sweden got its first overarching agricultural program in1947, a program that among other things aimed at a successive phasing out of smallholder farming and instead encourage mixed farming with animal production and about 10 -30 hectares of arable land, to be operated on basis of family labour.²⁹ The number of small holdings certainly declined over time although not only because of the agricultural programme but even more because of the contemporary industrialization, urbanization and other economic and social changes during the early postwar decades, without which the 1947 agricultural programme would hardly have become relevant. Moreover it was said that total production was to be adapted to the domestic demand. Taken together, the agricultural programme spoke for fewer dairy farmers and reduced production of milk.³⁰ Great changes were to be expected by the contemporaries, considering the fact that, in 1952, 43% of the total milk production derived from herds at holdings with 2-10 hectares of arable land and as much as 68% from farms with at most 20 hectares of arable land.³¹ The decline in production has been discussed and demonstrated in Figure 1 and the number of dairy herds and their size is discussed in the following. The total number of herds (irrespective of whether they produced for sale or not) was 301 000 in 1927, 299 000 in 1937, 272 000 in 1947, 242 000 in 1956 and 148 000 in 1965.³² The decline that followed from 1965 is demonstrated in Figure 6 that shows changes in herd sizes as well.

²⁷ Ekesbo et al 1969, pp. 440-448.

²⁸ Danell et al, 1974, p. 77 and 59.

²⁹ The recommended acreage was first set at about 10-20 hectares but later increased to 20-30 hectares (SOU 1946:42, pp. 135-140.

³⁰ The most comprehensive document on the 1947 agricultural programme is SOU 1946:42, 1946:46 and 1946:61 (in Swedish).

³¹ Jordbruksekonomiska meddelanden, September 1953, p. 404.

³² Statistical Yearbook of Sweden; Statistical Yearbook of Agriculture (incl. the author's calculations.)

Source: Statistical Yearbook of Sweden.





The diagram in Figure 6 exhibits radical changes. Within 15 years about 100 000 dairy herds disappeared, chiefly small ones with less than 10 dairy cows. The category 10-24 dairy cows remained stable, being some kind of ideal for the contemporarily encouraged family farm, mentioned earlier. The number of bigger herds, 25 cows and more was increasing although still small in numbers within the studied time period. The changes in Figure 6 differed also between regions.

Changes in the geographical distribution of the Swedish dairy production

To some the degree the decline in number of dairy herds differed geographically. According to a report from the early 1950s the production of milk at the biggest farms, often in the plains in earlier times, had been substantially reduced from the late 1930s to the early 1950s whereas the production was about maintained at other farm sizes. As some estates and other big farm on the plains of south and middle Sweden units gave up dairy production for pigs and crop farming, larger shares of the total production were produced in other parts of the south, middle and north of Ssweden. ³³ A study of the 1960s reported that the number of dairy cows had declined in average 20% between 1961 and 1966. The downturn was comparably evenly distributed across the country but about 30% in the counties *Västerbotten* and *Norrbotten* in the very north whereas the island and county *Gotland* in the Baltic sea and the county *Halland* in the south experienced only 6 and 7 % decline, respectively.³⁴

As regards farm sizes the Swedish production of milk was clearly concentrated to farm holdings of intermediate size, while a large number of small holdings and small number of big farms

³³ Jordbruksekonomiska Meddelanden September 1953, p. 404

³⁴ '*Regional utveckling i landbruket'*, 1968, Table 44, p. 126.

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provided for modest parts of the production.³⁵ In 1952, for example, units with 2-5 ha produced as much as farms with more than 50 ha, which also can be said about the year 1967. In the late 1930s and still in the late 1960s about half of the production derived from farms with between 5 and 20 hectares. With reference to the comment on lost rural idyll in the introduction of this paper, it can be added that many people's perceptions of Swedish rural idyll relates to these intermediate farm size categories. They were to great extent based on animal production, primarily dairy production, but also pigs and poultry in small scale. Much of the arable land was therefore used for feed and the milk price was of great importance.

Table 2. Total production of milk according to farm size, 1937/38-1952; Figures for 1964 and 1967 shows the distribution of the number of dairy cattle, indicating also the production of milk. Source: Jordbruksekonomiska Meddelanden September 1953, p. 404. *Arbetsgruppen för lantbrukets anpassning, Table 45, p. 127.

Farm size, hectare arable land	1937/38	1949	1952	1964*	1967*
0-2	6.2	4.5	4.6	-	-
2-5	13.1	12.8	13.4	9.3	7.0
5-10	20.8	23.9	24.9	23.9	20.0
10-20	23.1	24.6	25.2	29.4	29.0
20-30	10.5	10.5	10.3	15.1	16.7
30-50	9.9	9.3	8.7	11.0	13.4
50-100	7.6	7.0	6.2	6.1	7.7
100-	8.8	7.4	6.7	5.0	7.0
Total	100	100	100	100	100

The income of dairy production

The sale of milk provided for a substantial part of the total cash income in Swedish farming that, it should be remembered, was however farm from commercialized until the later parts of the here studied time period. According to a yearly published synthesis of farmers' accounts (increasing from 300 to 3000 farms over the years) milk accounted for between 30 and 40 per cent, varying over the years.³⁶ Table 3 displays the proportions between these sources of income during some example years and indicates a comparably stable percentage for milk, more volatile percentages for grains, and a stable increase for pig meat. It should be added that the cattle meat derived from dairy cattle, specialized production on meat was not yet practised in Sweden.

³⁵ Until 1951 units with 0.26 hectares or more (about half an acre) were registered as farm units, thereafter the lower limit was set to 2.0 hectares. In spite of the intensive animal husbandry in Swedish agriculture farm sizes are generally defined with regard to arable land. The proportions between arable land and number of farm animals were not linear. Farms in the plains had often more arable land in proportion to number of animals, whereas more forested areas had often more animals in proportion to arable land. ³⁶ '*Räkenskapsresultat från svenska jordbruk'*.

Table 3. Proportions between the values of milk, grains, cattle and pig meat. Sources: Räkenskapsresultat från svenska jordbruk: 1924, Table 10, p. 19; 1934, Table 10, p. 21; 1944, Table 16, p. 29; 1952 Table 22, p. 31.

	Milk	Grains	Cattle meat	Pig meat
1924	43	18	11	4
1934	34	29	7	7
1944	40	11	9	11
1952	36	14	10	14

According to the previous reasoning on farm sizes and regional differences the figures in Table 3 are avegares and not representative for all Swedish farmers. Especially the income from grains were primarily achieved at bigger farms with more arable land than was needed for to feed the farm animals. Figure 7 shows the average quantities that was delivered per dairy supplier 1913 - 1980.



Sources: Official Dairy Statistics 1913-1928; Statistical Yearbook of Sweden 1929 - .

Figure 7. Average supply of milk per year and dairy supplying farm holding 1913-1980, kilos.

The dip during the First World War can probably be explanied by a combination of harvest failure and increased direct sale, whereas the dip during the Second World War was chiefly related to the bad harvests. The graph in Figure 7 is surprisingly unchanged until the 1960s, between 10 000 and 15 000 kilos per farm and year, often around 13 000 kilos, or about36 kilos per day. Many farms increased their production, of course, but it seems as if the new suppliers long evened out others' increases. Not until around 1960 did the supply per farm increase substantially and was more than five folded until 1980. As can be seen in Figure 8, the stable average supplies were accompanied by a successive increase in the pay for milk, although inflation may have eroded the value.



Source: *Jordbruksekonomiska uppgifter* December 1945, Table C, p. 23; December 1956, Table C, p. 27; December 1962, Table C, p. 21; December 1968, Table C, p. 21.

Figure 8. Price per kilo to farmers and consumers (fresch milk, 3.5% fat content) in öre (1 Swedish crown = 100 öre), excl. various kinds of eventual supplementary payments to farmers and not correlated for inflation. The grahs shall be seen as approximate, du to the complexity of the price system, to both farmers and consumers.

According to Figure 8 the price to farmers increased gradually with exception for the years 1953-54, 1956-58 and 1965-66.³⁷ In the early 1970s, after the period illustraded by Figure 8, the milk price was substantially increased in order to handle concerns about a then too low level of production. According to the farmers' representative in many price negotiations Erik Swedborg the improved milk price was expected to encourage the production temporarily, rather than permanently, because of the still ongoing decline in the number of small holders.³⁸ This temporary relief is visible in Figure 2 where the downward graph is slightly flattened out in the early 1970s.

As regards the difference between the price to producers and consumers, respectively, this was comparably high just before the Second World War but kept stable at a lewel close to 20 per cent during the war time and during the half of the 1950s. Thereafter the gap increased and exceeded 100 per cent in the early 1960s. It has not been possible to analyse this gap thoroughly within the limits of this paper but it is suggested that one reason may have been due to the then successive change in packaging of the milk, from recycled glass bottles to single used tetrahedron-shaped paper packs.

Even though not all farm households were fully commercialized and even though other incomes were usually needed too, the price of milk has long been symbolic, probably since the Milk

³⁷ The milk price is still given in 'öre', even though the value is no longer used as coins. As curiosa, the importance of the pay for milk inspired to a popular song in 1951, where the title claimed that farmers needed '*Ett öre mer för mjölken*' (One more *öre* for the milk!).

³⁸ Swedborg, 1980, p. 42.

Propaganda campaigns in the 1920s onwards. The pork prise or the egg price have been paid far less attention that the *öre* per kilo milk that has been and still is of great importance for the atmosphere in the countryside and farmers' belive in the future. A low price could have two different kinds of impacts. Firstly that a final decision was taken to end up with dairy farming and often also with farming in general. Until the 1950s this case was almost solely an issue among smallholders but later on also at farmers of medium and big size (the biggest ones were sometimes earlier than the intermediate ones to end up with dairy farming, and to do that as a direct result of economic calculations). An almost contrary and well known reaction was to increase the production in order to compensate a lower surplus per kilo by producting more kilos. As alreade repeatedly discussed and clearly shown in Figures 6 and 7 both reactions were common and representative for the Swedish dairy history after the turn of the mid-century.

Concluding discussion: Welcomed to be developed during the seminar!

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