

Gendered technology in Swedish agriculture in the Interwar years: Images of masculinity and femininity in milking machine advertisements

by *Mats Morell*

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Department of Economic History,
Uppsala University and
Section for Agricultural History
Department of Economics
Swedish University of Agricultural Sciences, Uppsala
Correspondence: mats.morell@ekhist.uu.se

1. Introduction

Traditionally within peasant farming in Sweden gender complementarity ruled: Men worked in the fields, in the forest and with horses, while women managed the households, and cared for small animals and cows. Women did the milking, prepared butter and cheese but they also worked in the fields particularly in the peak seasons. The close relation between women and milk draws on old traditions, expressed in folklore about magic and witchcraft (Myrdal 1999). Internal demographic composition of the household could affect these norms and some pragmatism prevailed. For youngsters and elderly men, i.e. “less male” men, it was OK to milk cows and perform “female” tasks, but for a full-grown man milking was taboo. However it did not hurt women’s prestige to perform “male” tasks (Flygare 1999, pp. 224-225). Women’s flexibility to take on “male” tasks, has been much discussed (Thorssen 1993). One interpretation is to speak of a long-lasting “agrarian femininity” stressing strength, capacity to perform heavy physical work and readiness to take responsibility for any farm work.¹

More agricultural work was performed by women the smaller the farm. On larger farms female agricultural work field work was mainly performed by employed maids or by farm family daughters, while it was more common for the farm wife to perform field work on smaller farms. Also, a regional discrepancy persisted: regional differences in farm size aside, it was more common for women in northern Sweden to perform any farm work than it was in the south. This was because males in the north and in general on small farms more often participated in off-farm wage labor (mostly in forestry) while women in these cases took over the entire responsibility of the farm.²

According to time budget studies from 75 small farms in five different regions carried out in the summer of 1938 for an governmental investigation, housewives had a working day of

¹ Sommestad (1995). Another option is to use Laqueur’s theory of the perception of one sex implying a gradual, quantitative difference between women and men; women were simply seen, as “less” masculine than men, they were not opposite (Laqueur 1990, cf, Connell 1996, p. 68). This understanding of gender differences is claimed to have been replaced by the 19th century by views concentrating on contradictory difference between male and female bodies, (cf. Johannisson 1994), but reminiscences remained and possibly the one-sex interpretation has, as Flygare (1999) suggest, relevance for rural work still around the turn of the 19th century.

² Se e.g., Sjöberg (1996) drawing on a rather massive ethnographical material collected in the 1930’s but indirectly covering the final decades of the 19th century. Cf. Flygare (1999) working with similar material but also with interviews, Perlinge (1995) based on collected farm memoirs, and the synthesis in Morell (2001).

12 hours and 59 minutes, longer than so in northern districts, shorter in southern regions. On average 3 hours 59 minutes were spent on agricultural work (in the northernmost district more than 6 hours), of this 1 hour 53 minutes were spent on milking and milk related work, 1 hour 4 minutes were spent on tending of animals other than milking, 34 minutes on gardening and 29 minutes on “other farm work” (SOU 1939:6, p. 100). Some of the data on men’s and women’s farm work from a large survey made in 1937/38 is presented in table 1-2.

Table 1. Average number of labor days in agricultural work performed by different categories of labor on farms of different size in 1937/38. Owner occupied farms.

Farm size hectares of arable	Male farmer	Male family member	Male employed	Male labor sum	Female farmer (wife)	Female family member	Female employed	Female labor sum	Number of farms surveyed
2-5	247	140	31	418	268	137	47	452	3174
5-10	267	189	77	533	272	163	68	503	5002
10-20	268	216	182	666	269	178	111	558	3853
20-30	253	229	370	852	271	185	161	617	1360
30-50	232	218	679	1129	268	151	231	650	955
50-100	155	187	1416	1758	262	127	376	765	513
>= 100	44	88	4753	4885	205	42	920	1167	278

Source: Zetterberg (1954), pp. 224, 357.

From table 1 it is obvious that women, and in particular the farm wives, played a major role in agricultural work on small farms. Overall, naturally employed labor was more important the larger the farm. On small farms more women than men were employed (as their labor force were more flexible), on larger farms male employed dominates strongly. In table 2 it is shown that milking was the farm work most frequently performed by the farm wives.

Table 2. Proportion of farm units of different size where the farm wife performed certain types of work. 1938. Owner occupied farms.

Farm size hectares arable	Tending of animals	Milking	Harvest work	Gardening	Number of surveyed farms
2-5	81.2	89.3	44.8	23.0	2582
5-10	69.3	83.4	41.9	21.2	4116
10-20	51.0	72.7	33.1	19.9	3142
20-30	35.6	52.7	22.2	16.5	1118
30-50	24.1	30.9	13.8	14.7	777
50-100	15.9	11.5	3.7	12.5	408
>= 100	6.4	1.7	-	6.4	173

Source: Zetterberg (1954), p. 366.

As shown in table 3 the proportion of women in the agricultural labor forces decreased dramatically in the 1920’s and 1930’s. From 1939/40 book keeping data from samples of c. 2000 farms gives information of work hours performed by different categories. A work up of these data by Grabö (1951) unfortunately concentrates on farm family members alone, but they reveal that the overall amount and proportion of female labor from within the farm family decreases (figure 1). Work hours performed by other female farm family members decreased faster than work hours performed by farm wives. Disaggregated material shows that female labor decreased on all but the largest farms, where it had been least important. The

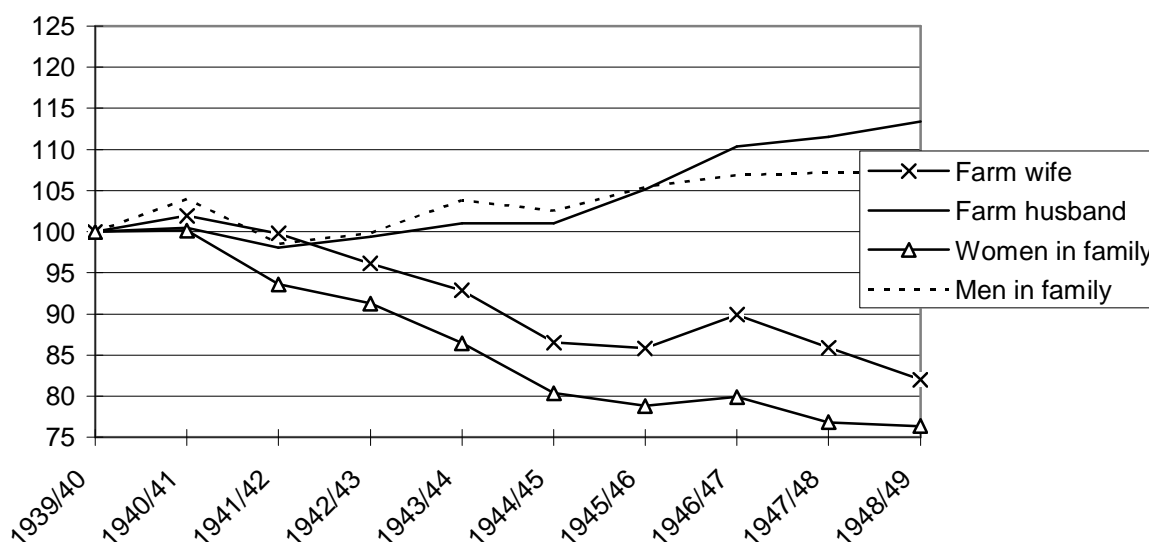
same tendency is evident in Nyberg's work up of the material which stretches into the 1980's (Nyberg 1989, p. 346-347). The farm wives working hours in agriculture fell except on the largest farms. As smaller farms dominated strongly in the structure, the overall tendency was one of decreasing farm work hours by the farm wives. Nyberg also showed (Nyberg 1989, p. 346) that the proportion of farms where the farm wife performed *some* agricultural tasks increased in all farm size groups until around 1960. From then on in most cases it decreased.

Table 3. Agricultural labor force in Sweden 1880-1940, farm couples disregarded. 1000's.

Year	Members of farm family Men	Members of farm family Women	Members of farm family Women incl. wives with no reg. occup.	Employed Men	Employed Women	Employed Women incl. wives with no reg. occup.
1880	195	167	179	186	127	247
1890	196	175	188	206	108	249
1900	207	182	191	198	95	234
1910	190	178	184	193	87	184
1920	168	188	193	193	79	154
1930	159	163	168	182	62	118
1940	150	115	115	148	47	101

Source: SOU 1944:65, p. 21.

Figure 1. Number of work hours performed by family labor (farm wife, farm husband, all female and all male members of farm family) 1939/40-1948/49. Index 1939/40 =100.



Source: Calculated from Grabö (1951), p. 16-20. (Sample of c. 2000 farms).

Qualitative data based on interviews and memories of farm people underlines the tendency of masculinization of farm work (Perlinge 1995, Jansson 1987). By the 1950's female farm labor consisted more or less only of farm wives and they more rarely had a field of

competence of their own, but rather acted as reserve labor in peak seasons on farms run by their men and without any farm hands, male or female.³ Farm work had become a “part time work for married women within the profession” (Grabö 1951, p. 22).

This process of masculinization was initiated in the interwar period and it will be shown that it came together with a professionalization of farm work, and with a tendency, on a discursive level, to give women roles exclusively in the reproductive sector as professional housewives. The paramount example of a field of work being masculinized was milking and milk processing. In this paper I will firstly discuss possible interpretations of these changes of gender division of labor in Swedish agriculture from the late 19th century up to World War II, concentrating on milk related work. Secondly I will show which work tasks were considered “male” and “female” in commercial advertisements published in a farmers’ professional journal 1928, 1936, 1941 and 1955. Finally I explore gender codes of work and images of femininity and masculinity in advertisements related to milk production, foremost ads for milking machines from 1928, 1930-1936, 1941 and 1955. The underlying hypothesis – which will not be formally tested – is that changes on the discursive level had a bearing on what happened in the “real life” in fields and barns.

2. The ascendance of milk and the changing gender division of farm labor

Until the mid 19th century milk played a minor role in commercial farming in Sweden. This changed when, from the 1870’s, the influx of cheap trans-oceanic and Russian grain disturbed the profitability of grain farming in Western Europe and when rising incomes of urban households in advanced countries led to increased demand for expensive foods like butter and pork. Swedish farmers turned towards dairy farming and animal husbandry (Morell 2001, pp. 85-108). Around 1930 c. 70 % of gross income of farmers originated from animal husbandry, and the bulk of this was generated by milk. In 1929 the net proceeds from the butter exports alone (c. 1/3 of production was exported) amounted to 72 million crowns, whereas the value of the entire wheat crop (the most important part of the vegetable output) was around 90 million crowns. Book keeping data from the inter war period throughout attest to the importance of milk for the farm economy.

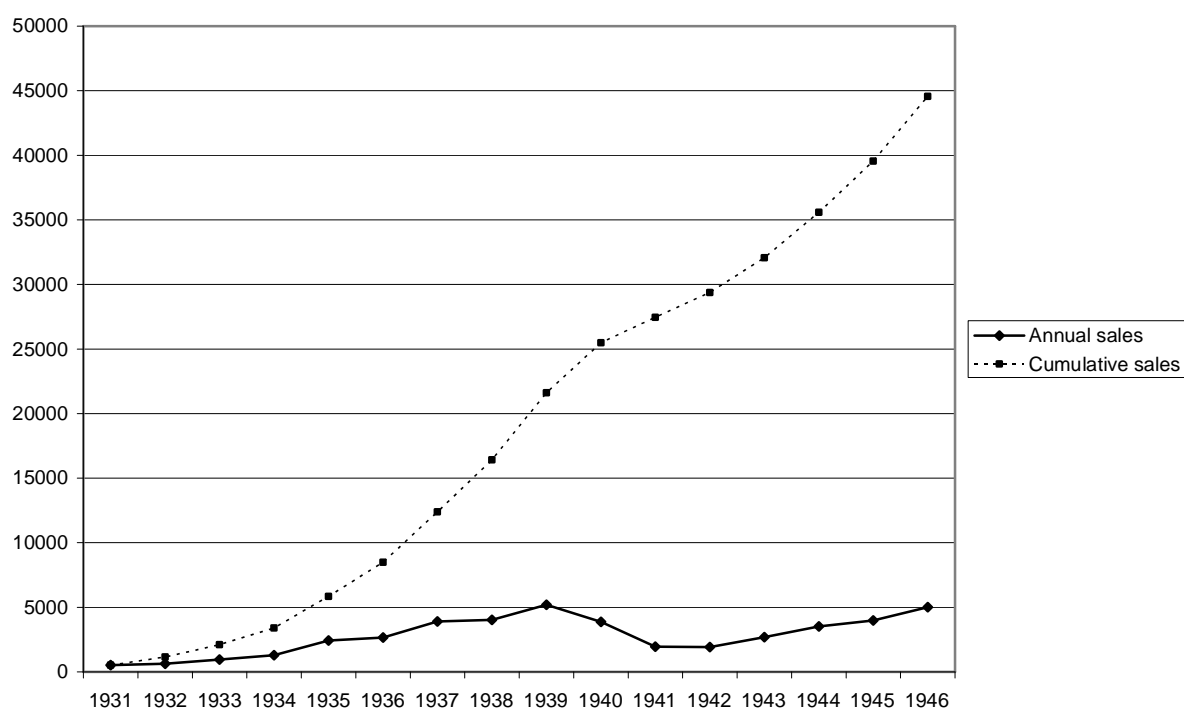
Thus a traditionally “female” branch of farming gained importance. Most farms were run patriarchally by men, and men now turned their efforts towards this branch. Men engaged in stockbreeding and co-owned cooperative dairies which soon came to dominate the scene. However, dairywomen withheld qualified positions in the dairies, female dairy consultants were appointed by the regional agricultural societies (Sommestad 1992) and in cow-houses women still performed most of the hand milking (Morell 2001, p. 52).

Delivering milk to dairies was advantageous since it gave farmers a continuous flow of liquid incomes. On large farms however, problems arose when milk quantities grew due to enlarged and improved stocks. The need for hand milkers rose and one solution was family employment of truck system wageworkers (*statare*). The male heads of the worker families were employed for one year on condition that their wives agreed to take on hand-milking duty. This did not suffice. There were not female hand milkers enough and male hand milking never appeared on any larger scale, although it became more common (Niskanen 1995).

³ There was a strong tendency throughout the 20th century for the use of family labor to increase in proportion to the use of wage labor. This tendency accelerated in the 1940’s. For example according to book keeping data farms of 30-50 hectares used 34,1% family labor and 65,9 % wage labor in 1939/40, but 51,9 p % family labor and 48,1 % wage labour nine years later (*Räkenskapsresultat från svenska jordbruk XXVI and XXXV*).

The potential demand for a labor saving milking machine was enormous, and by the early 1920's several functioning models existed. However, the post-war depression kept farmers from investing.⁴ The crisis around 1930 also delayed the breakthrough, but by the mid 1930's sales of milking machines grew strongly and twenty years later mechanized milking was becoming general (Morell (2001); Flygare & Isacson (2003)). Calculated sales of milking machines give some indication of the innovation process (figure 2). 21 000 sets at the outbreak of World War II might not appear much as there existed well over 400 000 farm units with cows. However most of these farms were very small, and foremost large farms with substantial cow stocks used machines. Thus the proportion of cows milked by machine was not so tiny. According to the agricultural census in 1944 9.6 % of all farm units used milking machines and roughly 25 % of cows were milked by machine. By 1951 28.6 % of farms used milking machines and c. 51 % of cows were milked by machine.⁵ By the 1950's milking was no longer considered specifically a female task. On larger farms an employed male, a cowman appeared and did the milking. On smaller farms family members, often the male head of household, milked. Why was milking masculinized and how was masculinization related to the change of milking technology?

Figure 2. Calculated annual and cumulative annual sales of milking machine sets in Sweden 1931-1946.



Sources: Calculations on the basis of industrial statistics foreign trade statistics and data on prices of milking machine: SOS Handel 1931-1946, SOS Industri 1931-1946, Modig (1984).

2.1. Milking from female to male: hypothetic explanations

One hypothesis draws on the larger farms' problems to get female milkers: it is claimed that there emerged a lack of female milkers, caused by a pull of young women from rural areas to towns where other possibilities for work and leisure were tempting. As already noted young women left agriculture in an out of proportion rate during the 1920's and 1930's. During the

⁴ Olsson (1994), on the development of the milking machine, see Jansson (1973) and Moberg (1989).

⁵ Calculated from Historisk statistik för Sverige II, tables E 39 and E 51.

1930's the number of women of ages 10-30 in rural areas sank by 24 % (SOU 1944:65). They continued to leave farming after the war, but by then young men left agriculture in similar proportions. Lack of female labor may have induced larger farms either to try to attract male hand milkers or to install milking machines. In family farms it happened, when younger women were missing, that male family members milked, first by hand, later by machine. The breakthrough of the milking machine ought to have occurred when the female exodus had contributed to a considerable rise in (female) labor costs, rendering the machine investment economically defensible at least on larger farms (Modig 1984). While it is clear that there occurred a substantial wage cost increase after 1936 (table 4) accentuated by a work hour regulation for farm hands in that year, it is also evident that women's wages in agriculture did *not* increase faster than men's during the critical years in the late 1930's. In fact the ratio of women's to men's wages fell. Therefore in fact it does not seem so likely that the tendency of masculinization followed from the demand of female labor not being filled, because of draining supply. If so women's wages ought to have increased in relation to men's.

Table 4. Yearly wages and day rates for men and women in Swedish agriculture 1929-50 (Index 1929=100) and women's wages in percent of men's wages.

	Men's yearly wages	Women's yearly wages	Men's day rates	Women's day rates	Women's yearly wages in % of men's	Women's day rates in % of men's
1929	100	100	100	100	80	69
1930	100	100	99	98	80	68
1931	98	99	97	96	81	69
1932	95	97	94	94	81	70
1933	90	92	92	93	81	70
1934	87	90	92	94	82	70
1935	88	91	95	95	82	69
1936	90	93	103	104	82	70
1937	102	99	108	104	77	66
1938	109	104	117	109	76	65
1939	115	108	126	121	75	66
1940	126	119	141	126	75	62
1941	142	133	159	145	74	63
1942	163	151	177	166	74	65
1943	183	171	193	198	74	71
1944	199	183	197	195	73	68
1945	222	195	221	222	70	69
1946	247	208	251	262	67	72
1947	269	222	281	304	66	75
1948	313	259	315	327	66	72
1949	327	269	337	336	65	69
1950	355	289	337	350	65	72

Sources: Lönestatistisk årsbok för Sverige 1939, p. 23, Lönestatistisk årsbok för Sverige 1950, p. 25.

The exodus of women from agriculture in the 1920's and 1930's may partly be explained by the evolution of an urban labor market mainly attracting women (Schön 1996), while industrial expansion and "full employment" pulled men from the countryside a couple of decades later. But why did not professional possibilities in agriculture develop and attract women when it did attract young men? And why would not the out of proportion lack of female labor produce an out of proportion increase in women's wages?

Another option would be to generalize from studies asserting that when new technologies were introduced, men tended to make use of them, while women had to do with older, backward technologies (Wikander 1988). This comes close to proposing that the prevailing gender order is expressed by jobs being recoded as male when they are mechanized. This is not generally valid. When milking machines were first introduced, they were sometimes operated by men, sometimes by women (Olsson 1994). Still in 1928, ads for milking machines used photographs of women operating milking machines in large cow-houses. Furthermore household work was of course not at all masculinized when, from the 30's onwards, it was gradually mechanized with water pumps, electric stoves, washing machines, fridges and so on. Rather this mechanization was related to a professionalization of the *housewife* (Hagberg 1986) and to more definitely marked differences in what men and women respectively were thought socially fit to do.

Two non-conflicting options remain. Either the gender coding of milk work was altered from "female" to "male" or the understanding of what a rural woman was fit to do was altered, or both. This view emerges from Sommestad's classic study of masculinization of the dairy industry. Women held skilled positions in the early dairies of the late 19th century and the early 20th century. But scientification around the handling of milk, technification of the old handicraft in dairies evolving from extensions of farms into urban process industries and increased economic relevance transformed skilled dairy work into an attractive alternative for educated young men. The evolving corps of *dairymen* secured a gender-segregated education, where men's studies had stronger theoretical contents than women's. Dairymen managed to establish themselves as members of an exclusive profession and to redefine dairy work as male. This secured them status, leading positions and more favorable development of wages. Meanwhile the view of how the female body was constituted and what a woman was fit for changed. The agrarian society which the small dairies and their dairywomen had been part of, had evaluated physically strong and capable women highly. By the Interwar years this "agrarian femininity" started to vanish. It became less and less "female" to turn around heavy cheeses and carry milk containers. By 1950 women were to be slim and "feminine", fit mainly for domestic spheres.⁶

The masculinization of milking work on the farms and the masculinization of farm work in general may have developed along similar lines. An important tendency occurred on the discursive level when, by the 1930's, it was obvious, that women left the countryside much faster than men. Generally it was argued that intolerable work conditions for women in farming contributed to the exodus. It was indeed proposed by some investigators that patriarchal traditions allowing women only to work with what men did not want to do themselves should be broken with and that non-segregated vocational training was needed to create attractive work opportunities for women in the countryside.⁷ However the common standpoint was that machine technology should be introduced in order to render it unnecessary for women (farmwives, farm daughters) to engage in agricultural work. Women on smaller farms were perceived as having a double work burden, being responsible both for reproductive duties of the household, and for working in agricultural production proper. This was thought to push women away from farming and the countryside. If women were spared farm work, they would stay, it was argued.⁸

⁶ Sommestad (1992). In many other countries masculinization of dairy work and on-farm milk processing occurred earlier. See for Canada Cohen (1984); for USA Jensen (1986); McMurry (1992); McMurry & Sommestad (1998); for Denmark Hansen (1982); for Ireland Bourke (1990).

⁷ Such views were expressed in the official investigation of married women's labor, SOU 1938:47 which strongly emphasized the right for married women to work in order to be emancipated, and by Grabö (1951)

⁸ This argument was most deliberately expressed, together with time budgets of women's work and pleads for collective mechanized laundry houses and the founding of a home economy institute, by the governmental committee on work relations on smaller farms, SOU 1939:6. A similar view (not confined to the farming sector),

The professionalization of the housewife and the male farmer/farm worker were thus simultaneously brought on the agenda. This occurred in the wake of a massive expansion of the national co-operative movement, headed by the national agricultural society (SAL) and of a consensus that the countryside was lagging after industry and urban areas in modernity (Hagberg 1986, pp. 155-156). SAL promoted the emergence of professional commercialized farmers, using latest technology and acting as employers of a similar caliber as industrialists. Agricultural work should be rational. Even Tayloristic time studies made their entrance (Morell 2001; *Maskindrift och arbetsförenkling* 1949). Clearly these tendencies were nothing particular for the farm sector as such. This was the era of modernism and functionalism, expressed in the Stockholm exhibition of 1930 and its slogan “to accept” changes.

Much of the new technology introduced and spread on the farms in the late interwar years, most notably the tractor, had strong male connotations. The emergence of the professional farmer and the new professional farm worker was connected to new technology. Memoirs of farmers and farm workers suggest that in particular the introduction of the tractor tempted young men to stay in the rural environment (Perlinge 1995). Fiction literature focusing on rural topics, pinpointed the connection between new technology and masculinity. Social photographers emphasized this image (Lo-Johansson 1946, Morell 2001, pp. 308-309).

Conclusively I believe that the pull-factor explained much of the disappearance of young women from the countryside and that this exodus, on one level, explains the spread of the milking machine from the mid 1930's. In doing so it contributed to recoding milk work from female to male. But the fact that women left agriculture and the countryside shall not be wholly attributed to the pull factor – wage data does not fully support such a view. I will work with the hypothesis that the exodus of women was partially also an effect of a lack of professional opportunities for women in farming as patriarchy remained and as new farm technology was connected to men and that this in its turn was partially an outcome of the recoding of what women could be and should do. In this new cultural coding, farm work, including cow-house work, fell outside the female sphere. Thus cultural (re)constructions of “female” work and “femininity” may have contributed to actual changes of the sex composition of the agricultural labor force.

3. Gendered technology in commercial ads directed towards farmers in 1928-1955

I have chosen to study how male and female farm work is depicted and how work with milk is gender coded in commercial advertisements, offering machinery and other inputs to farmers and dairies, in a national professional journal for commercial farmers, *Lantmannen/Tidskrift för lantmän* owned by SAL, the Swedish agricultural society.. According to Connell (1987) and developed by Brandt (1995) studying media representations, for example advertisements, is one of the best ways of exploring constructions of masculinity in modern society, since expressions of gender in such sources are simplified and stylized. Analogously, constructions of femininity and “female” and “male” work may be studied using such material.

3.1. Theoretical and methodological considerations

“Masculine” and “feminine” may be viewed as categorizations of various ways of performing. Masculinity and femininity are thus social constructions within the gender order (which is hierarchal and segregating) and these constructions are relational, masculinity is defined as non-femininity and vice versa. To some extent masculinity evolves in a homosocial context,

was expressed by the association of housewives and by some feminists propagating the possibility to base women's citizenship on reproductive labor (in household) rather than productive (wage) labor (Hagberg, 1986; Almgren 2002; SOU 1947:46). Cf. Hedenborg & Wikander (2003), pp. 98, 107.

in communication amongst men, creating conflicting ideals of what a man should be. Therefore there is neither one masculinity nor one femininity, but several, related to each other. We can expect to find differing ideals of masculinity and femininity in the ads.⁹

Advertisements must internalize values common to their target group. Ads are mirrors of the time and society they are produced in. Cultural norms expressed and *taken for granted* in the ads, tell us not only about the ad producers and the target group, but also about the society the ads were produced in. Genre pictures “possible” to show will therefore flourish in the material. In this case the target group consisted of commercial farmers. A vast majority of the readers were men. Most likely advertisers were also men. Thus it is the constructions, the ideals (also concerning femininity) of particular males that are reflected in the studied ads.

It is my first assumption that if, in the ads, certain work tasks or certain technologies are connected, to women (men), then these work tasks or these technologies were perceived as “female” (“male”) among the ads producers, probably also among the persons in the target group, and not unlikely in broader spheres of society as well. The advertisements per se may not very much have influenced how much women worked in agriculture, and what they worked with, but rather the ads *reflected* attitudes, and changes in attitudes, which at large may in fact have played a role in determining women’s relation to agricultural work. If an attitude about what women “ought to” work with is evident in the ads, it is likely that it is prevalent in society at the time. To some extent I believe it is possible “read off” attitudes by studying advertisements.

However in case of the introducing of new technology, advertisements could also argue in favor of a certain gender coding of the new technology. The ads were published in the official organ of an offensive interest organization, SAL, and ad makers were most certainly aware of policies favored by the organization. Therefore they may have presented their ads in a way conforming to the ideals of SAL as a representative of the general farming policy establishment. As the organization favored the formation of a corps of professional, competent, commercial farmers, using professional (preferably male) farm laborers it might have been tempting to express images of such people in the ads.

A second assumption is that constructions of masculinity and femininity prevalent among advertisers and readers are expressed in pictures of men and women in the advertisements.

3.2. Male and female work in commercial ads

I have checked all ads issued 1928, 1936, 1941 and 1955 in the journal depicting work situations in order find out gender codings of different working tasks. Table 5 shows the number of ads with male, female or child workers depicted. The share of female workers in the pictures decreases but the war year is exceptional in that more than 25 % of ads with workers depict women in 1941 but only 10 % in 1936 and 5 % in 1955. Tables 6 and 7 show the categories of work performed by women and men in the ads.

Table 5. Number of ads with picture references to male, female and child workers in 1928, 1936, 1941 and 1955

Year	Total number of ads	Ads with male workers. Per cent	Ads with female workers. Per cent,	Ads with child workers. Per cent.
1928	120	81,7	16,7	6,7
1936	105	90,5	10,5	0,0
1941	87	86,2	25,3	1,1
1955	216	93,5	5,1	0,0
Sum	528	89,0	12,1	1,7

Source: *Lantmannen, Tidskrift för Lantmän* 1928, 1936, 1941, 1955.

⁹ Connel (1996), pp. 67-76; Brandt (1995), pp. 124-125. Homosocial aspects of masculinity constructions are stressed by Tjeder (2003), pp. 21, 281-283.

Table 6. Categories of women's work in ads in 1928, 1936, 1941 and 1955

Year	Frequencies				Relative frequencies %			
	1928	1936	1941	1955	1928	1936	1941	1955
Household work	4	3	9	6	19	27	41	55
Machine milking	8	0	3	1	38	0	14	0
Hand milking	6	1	6	0	29	9	27	0
Unspecific dairy work	3	4	1	3	14	36	5	36
Cows and milk, sum	17	5	10	4	81	45	45	36
Poultry work	0	0	0	1	0	0	0	9
Non-mechanized field work	0	2	0	0	0	18	0	0
Garden work	0	0	1	0	0	0	5	0
Tractorized field work	0	0	2	0	0	0	9	0
Office work	0	1	0	0	0	9	0	0
Total	21	11	22	11	100	100	100	100

Sources: As for table 5.

Table 7. Categories of men's work in ads in 1928, 1936, 1941 and 1955

Year	Frequencies				Relative frequencies %			
	1928	1936	1941	1955	1928	1936	1941	1955
Household	0	1	0	0	0	1	0	0
Machine milking	3	2	0	0	3	2	0	0
Unspecific milk/cow related	3	4	4	13	3	4	5	6
<i>Cow and milk sum</i>	6	6	4	13	6	6	5	6
Tractorized work	18	24	7	132	18	26	9	65
Non-mechanized field work	30	36	38	15	31	38	51	7
Garden work	0	0	1	0	0	0	1	0
Ground investment	15	8	6	6	15	9	8	3
Agro-chemical	1	5	1	14	1	5	1	7
Forestry	1	1	0	0	1	1	0	0
Transport	3	2	4	3	3	2	5	1
Mechanical	15	0	1	3	15	0	1	1
Office work	1	0	0	1	1	0	0	0
(Scientific) "expert"	5	4	6	9	5	4	8	4
Building etc	1	7	7	5	1	7	9	2
Total	98	94	75	202	100	100	100	100

Source: As for table 5.

Despite small numbers some tendencies are evident. First, household work becomes more common in the ads, secondly frequencies of milk related work decreases but milk related work remains an important category. It seems as if machine milking is more often related to women in 1928 than in later years.

There are many more different work tasks related to men in the ads than to women – the material is biased towards male labor since the overall discursive tendency was that agricultural labor ought to be performed by professional men. “Tractorized work” connotes all pictures in ads where a men and tractors are involved, whatever kind of field work is concerned. There is a strong increase in the share of ads showing men in non-mechanized fieldwork until 1941 and of ads with men in work situations with tractors from 1941 to 1955. The share of ads showing men in milk related work is invariably small.

Children were depicted 7 times in 1928 as operating milking machines. Later children are only represented in one ad from 1941, concerning wartime substitute fodder gathering.

3.3. The gender coding of work in milk related ads

In this and the following sections I focus on ads concerned with milk equipment and in particular milking machines. Firstly I want to find out whether different categories of milk related work were considered as male, female or child work or perhaps “neutral”, and whether these codings changed over time. This is done in two steps first using all milk related ads, later only those concerning milking machines.

Table 8 shows the distribution of cases when men, women or children are *outright depicted* as working in the milk related ads. No tendency can be observed. Totally close to 50 % of work situations in ads depict women.

Table 8. Milk related ads with women, men and children depicted working 1928, 1930-1936, 1941, and 1955. Relative frequencies, percent.

Year	1928	1930	1931	1932	1933	1934	1935	1936	1941	1955
Women at work	55	33	60	29	96	86	22	57	71	24
Men at work	21	67	40	71	4	14	78	43	29	76
Children at work	24	0	0	0	0	0	0	0	0	0
Sum	100	100	100	100	100	100	100	100	100	100
No of ads	29	6	10	17	25	14	9	7	14	17

Sources: *Lantmannen*, *Tidskrift för Lantmän* 1928, 1930-1936, 1941, 1955.

Table 9 shows what the three categories worked with. No men are depicted milking by hand and no women are depicted doing laboratory or transport work. Most common for women is unspecified work in the milk-room of the cow-house. Both men and women (and children) are depicted as machine milking.

Table 9. Men’s, women’s and children’s work in milk related advertisements. 1928, 1930-1936, 1941, and 1955. Type of work specified.

Category	Work	1928	1930	1931	1932	1933	1934	1935	1936	1941	1955
Women	Hand milking	6	1	1	0	6	0	0	0	6	0
Women	Machine milking	8	0	1	0	2	2	2	4	3	0
Women	Unspecified	3	1	4	12	16	10	5	0	1	4
<i>Women</i>	<i>Sum</i>	<i>17</i>	<i>2</i>	<i>6</i>	<i>12</i>	<i>24</i>	<i>12</i>	<i>7</i>	<i>4</i>	<i>10</i>	<i>4</i>
Men	Machine milking	3	0	1	0	1	2	2	3	0	0
Men	Transport work	0	3	3	4	0	0	0	0	0	0
Men	Laboratory work	0	0	0	1	0	0	0	0	0	0
Men	Unspecified	3	1	0	0	0	0	0	0	4	13
<i>Men</i>	<i>Sum</i>	<i>6</i>	<i>4</i>	<i>4</i>	<i>5</i>	<i>1</i>	<i>2</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>13</i>
<i>Children</i>	<i>Machine milking</i>	<i>7</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>

Sources: As for table 8.

Table 10 gives a slightly other kind of information and make use of more ads than tables 8-9. Here I have categorized the ads concerning milking equipment as “female”, when the technology applied in the ads *relates in words or pictures to women using it*, as “male”, when it relates to men and as “child” related, when this occur. “Neutral” ads are not expressing any *explicit* gender coding of the technology or the work relating to it at all. A fourth category is added: some ads are categorized as *explicitly* promoting the replacement of female handicraft labor (*mjölkerskor*, female hand milkers) by machines operated by children or men.

Table 10. Milk related ads and their gender categorization. 1928, 1930-1936, 1941, and 1955. Relative frequencies %.

Year	1928	1930	1931	1932	1933	1934	1935	1936	1941	1955
Neutral	33	80	75	75	56	64	89	85	93	90
Male related	9	11	10	6	2	8	0	8	3	10
Female related	19	4	10	19	42	28	11	7	4	0
Child related	17	0	0	0	0	0	0	0	0	0
Machine instead of women	22	4	6	0	0	0	0	0	0	0
Sum	100	100	100	100	100	100	100	100	100	100
Total no of ads	47	46	51	68	62	53	70	87	72	51

Sources: As for table 8. An ad may be put in more than one category.

The explicit notions of machines replacing women occur only around 1930. From 1935 the ads with obvious gender codings become fewer and the category neutral - always the largest – dominates strongly. Commonly such ads make use of quite intricate technical information.

3.4. Gender codings in milking machine advertisements

I will from now on concentrate on ads exclusively for milking machines. All in all I work with 240 ads, but only with 119 *different* ads – many were published several times. The ads originated from three companies. *Benzona* was the smallest and was marketed by a Malmö firm which also imported and marketed stationary combustion engines. The *Benzona* milker did not survive in to the 1950's. *Manus* throughout remained a major producer of milking equipment and also related products like water pumps, and compressors. It was focused mainly on the Swedish market. Finally *AB Separator* which marketed the *Alfa-Laval* brand was already a multinational company, in fact one of the world leading firms in the dairy equipment branch. *AB separator* also marketed various dairy machines and certain other farm machinery for the cow-house. The brand and firm dated back to Gustaf de Laval's patents on different cream separators, and dairy equipment in the 19th century (Gårdlund 1983, Fritz 1983). *AB Separator* was the dominating advertiser and very frequently they advertised on the front page of the journal. In general the milking machine ads were very visible: they appeared on the front pages, on the back pages or on the first or last opening pages.

The principal technological breakthrough had occurred in the 1920's. Only by the 1950's release-systems in which the milk was transported through pipes from the milk place to a tank, started to replace the milk machine pails, which were heavy to carry (Jansson 1973).

In table 11 the gender codings of machine milking in the ads are considered.

Table 11. Gender coding of machine milking in milking-machine ads. 1928, 1930-1936, 1941, and 1955. Relative figures, percent.

Year	Female	Male	Child	Neutral	Sum	No of ads
1928	20	15	22	44	100	41
1930	0	0	0	100	100	15
1931	7	14	0	79	100	14
1932	0	0	0	100	100	13
1933	13	6	0	81	100	16
1934	11	11	0	79	100	19
1935	8	12	0	81	100	26
1936	11	14	0	75	100	36
1941	7	0	0	93	100	42
1955	0	0	0	100	100	18
All years	9	9	4	75	100	240

Sources: As for table 8. An ad may be put in more than one category.

I work with four categorizations and I ground the analysis on the pictures and direct references in the text. The codings are again “male”, “female” “child” and “neutral”. All 240 ads have been considered. No clear tendency can be discerned. Possibly the share of “neutral” ads increases. But apart from 1955 female as well as male machine milkers occur. In table 12 the gender coding of hand milking in milking machine ads is considered.

Table 12. Gender coding of hand milking in milking machine ads. 1928, 1930-1936, 1941, and 1955. Relative figures, percent.

	Female	Male	Neutral	Sum	Ads with ref to hand milking	Total no of ads
1928	65	0	35	100	17	41
1930	29	0	71	100	7	15
1931	75	0	25	100	4	14
1932	0	0	100	100	2	13
1933	0	0	100	100	1	16
1934	0	0	100	100	8	19
1935	0	0	100	100	4	26
1936	0	0	100	100	8	36
1941	10	0	90	100	10	42
1955	-	-	-	-	0	18
Sum	28	0	72	100	61	240

Sources: As for table 8. An ad may be put in more than one category.

Evidently something happens. Whereas many of the references 1928-31 are “female”, practically all references from then on are “neutral”. In 1928-31 the references to female hand milking is always visualized in pictures. After 1931 hand milking is only once, in 1941, visually related in milking machine ads. Instead it is referred to in text. Typically the advertisers argue that machine milking is superior to hand milking for a number of reasons. In some cases the ads talk very neutrally about “hand milking” (handmjölkning). More problematically the ads talk frequently in the mid 1930’s about *hand milkers* using the masculine form of the Swedish word for milker (*mjölkare*). Even though male hand milkers occurred in the 1930’s they were not common and it is not likely that the advertisers by writing “*mjölkare*” actually wanted to state that it was male hand milkers that were to be replaced by the machines. Rather there is a scent of de-personification of the milking act and it comes together with other signs of efforts to professionalize the milking work. As the normative professional was a man, male connotations are used - for the machines as well. Typically a couple of ads published in 1934 and 1935 (1934B11 and 1935B10) talks of the Alfa-Laval milking machine as a “milker who never tires”, the argument being that a hand milker rarely manages to milk the last cows as well as the first ones. A mechanic milker, a machine, thus equaled the human milker and the machine as such was given a male connotation, as was the human milker.

3.5. Arguments in milking machine advertisements

All advertisements naturally propagated for the very brand of machines they tried to sell, but around 60 % of the ads also propagated for machine milking as such. Different aims implied different use of arguments, and some of these arguments had bearing on the gendered reasoning in the ads. I reckon with five types of arguments: 1) Technical-economical arguments, 2) the independence-from-labor-force argument, 3) the unskilled-labor-argument, 4) the saving-labor argument and 5) the comfort argument.

The technical-economical arguments were used in 127 ads promoting the introduction of machine milking per se. In 73 of the cases it was held that machine milking improved hygiene and gave cleaner milk, i.e. milk of better quality. Thus milk was better paid if machine milking was adopted. In 72 cases it was claimed that machine milking emptied the udder better than hand milking and/or gave more even milking and/or tempted the cows to give more milk.

The hygienic argument was an argument for professionalized, industrialized milk handling. In some of these cases, (6 identical ads in 1935 and 1936) a woman is shown washing milk equipment. Mostly the hygienic argument is just mentioned in the text. Indirectly it is stated that hand milking was unhygienic.

The argument about the emptying of the udder was sensitive. In the early days of machine milking it was common knowledge that the machines did *not* empty the udder well enough. This caused risks for udder inflammations, but also reduced milk quantities as the milking capacity of the cow threatened to go down, was she not emptied. Therefore experienced (mostly female) milkers were employed to milk out the last drops from each cow by hand after the machine had been used. In fact in an ad for Benzona (1928B18), empirical results are quoted stating that for 40 cows only 10 liters of milk per day had to be milked afterwards by hand. This was claimed to be an advantage of that particular brand, i.e. the amount of residual milk was considered small. Apparently this was problematic for machine constructors.

In 1928B7, published three times it is stated “machine-milking supersedes hand milking”. On a close-up drawing two female hands milk a cow of which only the udder is shown. On another close-up drawing there is an x-ray picture of an udder with a connected milking machine. The text argues that the foremost condition for highest possible turnout of milk is uniform milking day after day, which is said to be achieved with the advertised machines, which makes the farmer independent of the tiredness, occurring when the hand milking method was used. By using machines the farmer could be “assured that even the last cow is as well milked as the first one, day after day”. This argument returns frequently in the mid 1930’s. It is repeatedly claimed that it is hard to find competent hand milkers who are able to milk all cows evenly good. Therefore machine milking should be preferred.

In proposing to exchange hard to get handicraft skills with machines, *the independence* argument is approached. It is used in 18 cases (see table 10), most commonly around 1930 and in the war year 1941. A clear representation is found in 1928B13: “The milking causes large troubles for many farmers, since skilled female hand milkers (*mjölkerskor*) are increasingly hard to find. By installing the milking machines Alfa –Laval or Alfa Baby of the new model, the farmer becomes more independent of the human labor force...” In this ad there are two pictures. One encircled small picture shows a number of female hand milkers in action, with the heading “Förr” (yesterday) and a larger picture shows a girl, about ten years of age operating a large number of milking machines in a modern cow-house, with the heading “Nu” (now). A similar ad, 1928B10, occurred twice. Here it is a small boy joyfully operating the machines under the heading “the future way of milking”, whereas a smaller picture shows an old man with beard and walking stick watching a number of female hand milkers in action.

Implicitly the independence argument comes up again in 1931B1. It shows a young female milker hugging a cow by one hand and carrying a milking machine by the other. The text, runs like a fictive job advertisement:

Do you need a female milker (Sw. *mjölkerska*)? My name is ALFA-LAVAL. I work for four and ask for no pay. I am fine, hygienic and I never go on strike. The cows like me so much, that they even use to give more milk than ever before, because I milk them so evenly, soft and pleasantly. Can I not have a try?

In these three cases it is explicitly female labor, being proposedly replaced by the machine. In other cases this is less obvious. Yet another ad (1928B4) quotes a fictional farmer claimed to represent “thousands of farmers” explaining that his “little girl or boy “can if necessary” perform the milking by themselves, since he has bought milking machines. On the picture a girl, reaching the hips of her father, skips and jumps while carrying a 25-liter milking machine pail. The ad 1932B9, shows a calendar with the date 24 of October, the day when farm laborers were hired for one year to come. The date is approaching, claims the text and “thereby follows the usual problems concerning the yearly contract and the milking. Make your self independent once and for all and save some money by purchasing the efficient and economical Benzona - Perfection milking machine”. The type 1934B5 recalls how hard it is to get “good milkers”, while it is known that both the well being of the cows and the amount of milk depends on the “skill and endurance of the milker”¹⁰. Using Alfa-Laval machine milking the farmers become totally independent in these two respects, it is maintained. In 8 ads in the war year 1941 focus is laid on the necessity to make use of less skilled milking labor, and implicitly in ads like 1941B1 and 1941B18 it is the male labor force called into military the farmers are claimed to become independent from.

The independence argument comes close to arguments stating that the milking machine can be used to reduce labor costs. These arguments are of two kinds. One is stating that the use of adequate milking machines can reduce the need for *skilled* labor. Skilled, expensive labor is to be replaced by the machines plus (smaller inputs of) *unskilled*, cheaper labor. The use of the unskilled-labor argument is depicted in table 11.

This argument is used in 21 cases, mostly in ads arguing for the replacement of hand milking by machine milking. Numerous ads from 1928, some already mentioned, show female hand milkers being replaced by children (1928B3, 1928B4, 1928B6 and 1928B10). In 1928B6 it is claimed “your daughter alone can do the milking better than skilled female hand milkers, if you install Alfa Laval or Alfa Baby milking machines”. But there are also ads where a particular brand of machine is claimed to be superior to others because it is so simple to handle that children can operate them, while competitors are claimed to request skilled operators. In 1928B21 it is claimed that the advertised machine does not even request a “mediocre milker”, a child of 12-13 years of age would do. The unskilled labor argument is used again in the war year 1941 together with the independence argument.

The argument that handicraft-like skilled (female) laborers can be replaced by *unskilled* machine operators, even children, runs counter to efforts to professionalize farm labor. By claiming anyone could handle the machines, the status of the machine operator was depreciated. Maybe this is why the argument that children could operate the machines is totally absent from 1930 onwards.

Naturally it was also claimed that machines reduced labor costs as *less* labor needed to be used. This argument is implicit in many early ads, for example those from 1928 with one child and machines replacing many female milkers. But the purest version of the argument is an ad (1931B2) appearing twice in 1931. Here is found a crossed over picture of five female hand milkers with buckets. An arrow points at a second, larger picture where a muscular male stands behind four milking machines. The text starts: “One man with 4 machines equaled 5 female milkers”. Details are given aiming to prove the relative efficiency of the machines and finally it is stated that from official tests it has been “concluded that the milking staff could be reduced by 1/5 by using machine milking”.

This type of argument is most common in the early 1930’s, right when wages were falling and unemployment skyrocketed. This might reflect that the labor market was segmented. Practically only women performed hand milking. Since foremost female labor was pulled

¹⁰ See above concerning the use of the masculine “milker”. (mjölkare).

from agriculture male unemployment did not make it much easier to get hand milkers. Some ads argue that production cost could be pressed down to meet falling product prices, by shedding labor and introducing machine milking: “The worse the times, the more the farmer needs his Alfa Laval [milking machine]” (1931B4).

The *comfort argument* occurred 7 times. It states that the installation of machine milking makes it more pleasant to do the milking work. Some ads simply state, as 1928B6, that “milking, one of the least liked tasks on the farm, is *performed with joy* by your daughter....” if milking machines are installed. In other cases the argument is logically extended: More pleasant working conditions makes it easier to recruit competent labor. This argument like the saving labor and unskilled labor arguments fits in a time when agriculture was faced with strong competition for its labor force from other sectors. The argument pops up during the war. 1941B11 shows a fictive recruitment ad reading: “Girl, will be employed from 1 December in a small farm family. Milking machines are installed. Answer with wage requests and preferably references to...” The main text states that “If you have milking machines installed it is easier for you to recruit laborers who are willing to milk your cows....”

All in all many of the uses of the listed arguments are gendered in the sense that they de facto promote the replacement of female hand milkers with machines and machine operators. This is explicitly true in 25% of all ads from 1928, in 13 percent of all ads from 1930 and in 20% of all ads in 1931. From then on no ad *explicitly* talks of replacing female milkers by machines. However gender neutrally presented hand milking is repeatedly propagated against in the mid 1930’s. By giving both the hand milker and the milking machine as such a masculine gender (*mjölkare*) the ads strove to present milking work as a kind of industrialized, professionalized, gender neutral (but inherently male) work. Except for the early ads of 1928 promoting use of unskilled child labor, they generally promoted (or reflected) professionalization. Female hand milkers appeared as an anomaly and were not even mentioned. Although female hand milkers were typically replaced by machines, the ads (from 1933 onwards) wanted to express that it was the technically inferior hand-milking *as such* that was to be replaced by machine milking *as such*. The arguments however spoke of lack of labor and implicitly referred to the lack of foremost female labor, actually performing most of the hand milking. Hand milking was still recognized as female in ads from the 1940’s. Therefore the general reading of the ads was most likely that female labor could be un-necessitated by machines.

4. Images of masculinity and femininity in the milking machine ads

In the ads I found representations of three stereotypes expressing different strands of masculinity, and of two stereotypes expressing strands of femininity. The masculine stereotypes are: 1) the entrepreneurial responsible farmer; 2) the professional (able, educated, strong and muscular) worker; 3) the “expert”, a laboratory man in white robe and with other attributes of scientific or engineering competence. All these masculine stereotypes express superiority, albeit variously grounded. The two feminine stereotypes are: 1) the strong farm women, expressing what Sommestad labels “agrarian femininity”, muscular, able to perform heavy work of any kind; 2) the slim, professional women.

As already noted all ads analyzed are primarily targeted towards a particular masculine figure: the *entrepreneurial commercial, modern farmer*. In that sense there is implicitly a very general image of such masculinity in *all* the ads.

In the early years the target group was arguably more composed of employers with wageworkers, ideally not so much involved in physical work, and for sure not normally

engaged in milking. By the 1950's this had changed. Most readers by then were self-employed farmers, with few or no employees beyond the family.¹¹

All in all there are 32 images of men somehow associated with milking or milking machines in the ads. In eleven of these pictures, nine from 1928, one from 1931 and one from 1955 an entrepreneurial farmer is depicted. In the early pictures the involved persons are invariably dressed in a way that tells us they did not do much manual work. In 1928B1 there is a farmer checking his milk accounts and calculating the benefits of the investment in milking machines. He is wearing a tie. In 1928B4, 1928B9, published twice and in 1928B12, published three times the farmer is pictured in hat and tie. In particular the farmers in 1928B4 and 1928B12 (who is demonstrating a milking machine to his dairywomen) are elegantly dressed, in the first case with fancy boots, in the second case wearing a suit. Similarly in 1928B15 published twice, the farmer has a hat and an elegant vest. These farmers are employers. On the other hand the farmer from 1955, who is depicted while visited by a milking machine serviceman, has the general outlook of a man operating his machines himself. He is causally dressed in a checked shirt. He expresses calm in a fatherly way, smoking a pipe. Outside the window a little boy is playing (not working), the flag on the pole is waving. This is the father in a modern self-employed farm family.

Male manual workers appear in 16 ads, apart from the collective picture in 1928B9. There is a machine operator in 1928B2, depicted at a distance making it hard to judge details. In 1928B14 there is another worker with bare arms, lifting 50-liter milk containers on a truck, while a woman pours milk from a pail into another container. In 1931B 2 we have the archetypical modern male farm worker, in cap and with bare arms, strong and muscular, standing broad legged, with hands in pockets behind four milking machines which have replaced five female hand-milkers. Photos of distant male milking machine operators, wearing caps are found in 1933B5, 1935B5 and 1936B1. A drawing of a very determined looking milking machine operator dressed in cap and vest and with hands on hips is found in 1934B2, published five times in 1934-36.

Thirdly, *male experts* show up in a couple of cases. In 1928B11, published twice, there is a young handsome man in white robe and tie, very determined and sharply pointing at a Alfa Laval milking machine. He appears as the stereotype of an engineer. In 1941B4 a baldheaded professor stereotype with glasses, moustache, tie and a white robe with pencils in the breast pocket is found. He is also pointing at a milking machine, in an ad drawing on the company AB Separator's (manufacturing and selling Alfa Laval) long experiences since Gustav de Laval of producing milking machinery. In 1955B7 we have the serviceman, in white robe and with his service van waiting outside.

Images of femininity are harder to categorize. In two cases the female hand-milkers are depicted as expressing something clearly outdated. In 1930B1 there is a woman seen from behind, milking a cow. She is not, as most other women in the ads particularly slim, and she wears a scarf in the way of an old women. In 1930B10, there is likewise an old woman (out of proportion small compared to the cow) who is also milking by hand. In other cases female hand-milkers are very differently depicted. In ads 1928B3 and 1928B10 appearing twice, they sit in an anonymous row milking a number of cows. They represent the old way of milking, but they approach modern "movie star ideals", being slim, seemingly delicately dressed and young. Similar with the five female hand milkers being replaced by machines in 1931B2. They look like young professionals uniformly dressed, in skirts ending at the knees, aprons, bare arms and small scarves covering the hair. All in all 20 pictures from 1928 and the thirties depicting women operating milking machines, filtering milk, cooling milk or washing milk

¹¹ This reflects a transformation of farms based on waged employed labor into family farms, based mainly on kinship labor. See Räkenskapsresultat från svenska jordbruk 1914/15-1949/50. Cf Morell (2001) p.76.

equipment depict slim, invariably elegant *young* women in mostly dark short skirts, white aprons, small caps and bare arms (1928B12, 1928B13, 1928B14, 1933B1, 1934B4).

The fact that most women in the ads looks like young elegant professionals is not by chance. On the one hand it may be viewed as a sexist approach of the men composing the ads. But probably more important: It corresponds to a common view that farm wives, i.e. married and, presumably somewhat older women, were to be given roles as professional housewives, performing exclusively reproductive tasks. Certainly they should have no role in commercial agriculture, it was a sign of poverty if they worked in the cow-house. In Sweden, as in many countries in the 1930's there was much discussion if at all married women should (be allowed to) perform productive (non-household, wage) labor (Hagberg 1986). Young (unmarried) women on the other hand could (and should) work and in the ads their role in agriculture is glamorized: they are seemingly educated, delicately dressed and they seem to work in sterilized, tiled laboratory environments rather than in dung-stinking cow-houses.

There are also a few ads showing strong farmwomen not fully fitting into the stereotype of young slim professionals. In 1928B2, we find the farmer's daughter, a teenager in workpants, bare arms and a large scarf covering her hair. She carries two 25-liters milking machine pails. Secondly there is in 1931B1 a picture of a women fitting rather well into the young slim professional description, but also expressing rurality and strength. It is the one hugging the cow with one hand and carrying the milking machine with the other. In 1941B5 finally, is found a photo showing a blond, long-haired, muscular woman, dressed in white, with bare arms, clogs on the feet, carrying two milking machines. These three pictures come closest to expressing Sommestad's "agrarian femininity".

To sum up: males are either depicted as entrepreneurial farmers, in the early years as employers, later as family fathers; as new farm workers, muscular and strong; as experts with engineering or other scientific skills. Women are either depicted as elegant, slim, young (unmarried) professionals, or similar, but more openly demonstrating rurality and physical strength.

5. Conclusion

The results from the study of advertisements must be handed carefully. It should be clear from the statistics presented in the first part of the paper that women in the 1930's in the 1940 and in the 1940's worked much more in agriculture than they did in the ads in Lantmannen. On the other hand it is quite clear that the real changes that did occur went in the same direction as proposed by the changed content of the ads discussed in this study.

The findings in this paper can be summarized in a number of points.

1. Women and in particular young women left the countryside and agriculture in high proportions during the inter war period. (This is not a new finding).
2. There was a tendency that female milk related work was mechanized and taken over by men, starting from the 1930's. (This is also not a new finding).
3. Partially the tendency to replace hand-milking women by milking machines can be attributed to the exodus of young women from agriculture and to rather sharp increases in farmhand wages (male and female) after 1936. However women's wages did not increase in relation to men's.
4. There is an overall decline in the representation of female workers 1928-1955 in ads, war years excluded.
5. Up to 1941 women are still often depicted as performing milk related work, sometimes operating milking machines.
6. By time more representations of household work by women occur in the ads.
7. Men's work in the ads is increasingly associated with the tractor

8. Hand milking is to start with wholly depicted as female, but in the mid 1930's it is more gender-neutrally described. However the entire milking situation is de-personified, professionalized and technified, no humans seem involved but *male* gender expressions are used.
9. Many ads around 1930 refer to replacement of female hand milking by milking machines, in 1928 often operated by children.
10. Arguments used to promote this transfer concerns hygiene, the capacity of machine milking to empty the udder and produce maximum milk output, the ability to attain independence from skilled labor, the capacity to save labor and finally that the machines offer comfort, making it easier to recruit labor.
11. In the ads men are either depicted as entrepreneurial farmers, as professional, muscular and strong "new" farm workers or as experts with engineering or other scientific skills. Women are either depicted as elegant, slim, young (unmarried) professionals, or similar, but more openly demonstrating rurality and physical strength.

Roughly spoken female hand milkers made place for male machine milkers both in the ads and in reality. By the 1950's women are not depicted in milking situations or with milking machines. Largely the *depicted* milking situation is by then de-personified, professionalized and technified. No humans seem involved but *male* gender expressions are used. Women appearing in the ads of the mid thirties were drawn as young (presumably unmarried) professionals fitting into the image of the modernized farm labor. The female professionals in the ads do not conflict with the evolving image of the professionalized farm housewife – we cannot identify one single machine-milking housewife in the ads. Spheres were to be separated. Young unmarried women were considered fit for professional productive work, housewives were not. These discursive changes went along with real changes, although the latter changed much less which is not surprising as the ads expressed (someone's) ideals.

The hypothesis that a general change in cultural attitudes about what women and men should work with influenced the changes of the gender division of labor in agriculture can not be fully vindicated but it is at least supported by the results of the study of advertisements.

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