

Organic milk and meat production in Estonia – current situation and perspectives

L. Lepasalu, D. Arney, R. Soidla and V. Poikalainen

Estonian University of Life Sciences

e-mail: lembit.lepasalu@emu.ee; tel: 003727313320, fax: 003727313354

Summary. The main livestock farmed in organic production systems in Estonia are cattle and sheep; the proportion of pigs, goats and chickens is marginal. The number of organic cattle was about 18,000 in 2008. The total number of organic cattle has increased by more than 50% in the last four years (2005–2008) whereas the number of organic dairy cows has remained stable at about 3,000, only 3% of the total number of dairy cows. The number of organically reared lambs numbered nearly 34,000 in 2008 (37% of the total number), which has doubled in the last four years. Organic livestock farms are distributed all over Estonia, but are concentrated mainly in the south and on the large islands in the west. Only two farms produce organic dairy products commercially, and there are two small-scale slaughterhouses for organic meat. Despite agricultural subsidies, a great deal of organic livestock production is sold as conventionally produced. The main reason for this is the lack of enterprises' potential, or incentive, to produce organic meat and dairy products from organically produced milk and meat. This sector is currently the bottleneck preventing further development.

INTRODUCTION

Milk and meat production are currently, and will probably remain, the most important sectors of Estonian agriculture. Development of the agricultural sector, including individual and herd productivity and profitability has been rapid over the last 10 years, due to increasing herd size, improved breeding and the introduction of the newest technologies. Mean dairy herd size has risen from 44 in 1996 to 75 in 2008 (Eesti...2008; Jõudluskontrolli...2008). The introduction of newly built, large, uninsulated cow housing incorporating precision dairy farming has laid the foundations for the intensification of milk production and improvement of animal welfare (Poikalainen et al., 2007). Similar development has taken place in the meat sector. These developments became possible on large farms with the aid of significant financial investment. As a result of these developments, smaller agricultural units have either had to cease livestock farming or find new possibilities to provide a sustainable income. One of the options is organic livestock farming. In this context, improving the quantitative and qualitative production of organic milk and meat is of great importance in the rural development of Estonia. On the other hand, scientific research studies in organic dairy and meat production are rare, especially those that deal with the entire food chain, from the farm to the consumer.

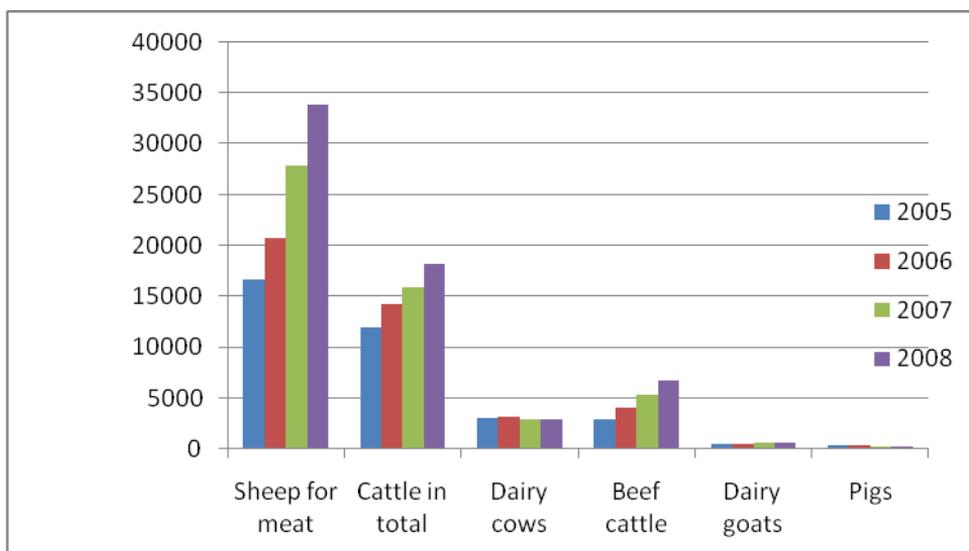


Fig. 1. Dynamics of total numbers of the main organic livestock species in Estonia from 2005 to 2008 (data include livestock of the transition period).

The aim of the current study was to summarise developments in organic milk and meat production in Estonia, describe the current distribution of organic livestock farms, and map the possibilities for improvement in the processing of organic milk and meat into marketable products.

MATERIALS AND METHODS

The study involved analysis of registered organic livestock farms throughout Estonia over a period of four years (2005–2008) from the start of the introduction of state subsidies for organic agricultural production. Data concerning farms and dairy and meat processing plants, their distribution, production level and products were collected using official databases, surveys about the topic and telephone questionnaires. The main data sources were the Organic Agriculture Department of the Plant Production Inspectorate, surveys of the Estonian Institute of Economic Research, Agricultural Registers and Information Centre, Ministry of Agriculture and data from questionnaires carried out during the investigation.

Yearly figures for organic livestock production of different species were calculated, and dynamics and trends described over the period of investigation. The geographical distribution within counties and throughout Estonia was established. Suggestions for the processing of organic milk and meat into consumer products have been made on the basis of these analyses.

RESULTS AND DISCUSSION

The number of organic livestock farms in Estonia has slowly increased from 2006 onwards. The numbers are: 1,172 in 2005, 1,210 in 2007 and 1,243 in 2008. Of these

farms, 38% are purely organic crop producers, 61% both organic crops and livestock, and less than 1% produce purely organic meat (Mahepõllumajanduse...2009).

There are 236,338 cattle, 21,600 goats and 60,971 sheep registered in Estonia (Registrid...2009). The main species in organic livestock production were sheep and cattle (Fig. 1). Cattle are used for both milk and meat production. The number of organic cattle increased from less than 12,000 in 2005 to 18,000 in 2008. The increase in beef cattle was more than double. The number of dairy cows has remained close to 3,000, and has even slightly decreased in number over the same period. A significant increase has taken place in the number of sheep for meat; from about 17,000 in 2005 to 34,000 in 2008. One farmer is planning to introduce sheep milk production and hopefully his initiative will be followed later by others. The increase in the number of dairy goats was about 50% during the investigation period, but as the absolute number is less than 700 their importance in organic milk production remains marginal. Rearing organic pigs, rabbits and chicken is not popular in Estonia and it has consistently decreased during the period of investigation. The same tendency is apparent for pigs. Organic pig production is marginal, especially in comparison with conventional pig production. The number of organic horses is significant and is increasing consistently, but they are not reared for meat (Table 1).

Table 1. Number of animals used in organic livestock production in Estonia (data include livestock of the transition period) (Mahepõllumajanduse...2009).

| Species/year | 2005 | 2006 | 2007 | 2008 |
|--------------------------|-------|-------|-------|-------|
| Sheep for meat | 16735 | 20723 | 27932 | 33860 |
| Cattle in total | 11916 | 14255 | 15890 | 18215 |
| Beef cattle | 2964 | 4069 | 5373 | 6769 |
| Dairy cattle | 3031 | 3230 | 2959 | 2880 |
| Dairy goats | 447 | 558 | 643 | 680 |
| Pigs | 348 | 434 | 278 | 253 |
| Rabbits | 562 | 483 | 347 | 269 |
| Horses | 1309 | 1410 | 1647 | 1708 |
| Laying hens and chickens | 5250 | 4602 | 4094 | 4097 |
| Broilers | 58 | 0 | 0 | 0 |
| Other domestic birds | 396 | 435 | 365 | 313 |

Analyses of geographic allocation showed that organic milk and meat production units are distributed unevenly. There are certain areas of higher concentration in Estonia. The number of organic farms is greater in the western and southern parts of Estonia (Table 2). Interestingly, organic production is less evident in Northern Estonia. Even around Tallinn, the capital city where about 1/3 of the total Estonian population live, there are less than 5% of organic sheep and beef cattle and only 8.4% of organic dairy cows.

Table 2. Regional distribution of main organic animal species in 2008.

| Region | Milking cows | Beef cattle | Sheep | Total |
|------------------|--------------|-------------|-------|-------|
| Northern-Estonia | 19,4 | 9,0 | 7,2 | 8,5 |
| Central Estonia | 16,5 | 14,6 | 15,2 | 15,2 |
| Western-Estonia | 43,4 | 48,0 | 36,9 | 39,7 |
| Southern Estonia | 20,6 | 28,4 | 40,7 | 36,6 |

Of total organic production, milk is the most favoured product. The total amount of organically produced milk exceeds meat production by a factor of about 18 (13,597 tons versus 752 tons from the year 2007 figures). As milk and meat differ considerably in their water content, we estimated differences in organically produced milk and meat in terms of protein contents. The ratio of organic milk to meat protein in 2007 was 3.8 (about 460 tons in milk versus nearly 146 tons in meat). The total estimate of organically produced milk and meat protein was about 606 tons in the same year (Table 3).

Table 3. Organically produced milk and meat in 2007.

| Product | Amount, tons | Share in production, % | Estimated protein, tons | Share in protein estimation, % |
|-----------|--------------|------------------------|-------------------------|--------------------------------|
| Cow milk | 13,473 | 94.5 | 458.1 | 75.6 |
| Goat milk | 24 | 0.2 | 1.5 | 0.2 |
| Lamb | 107 | 0.8 | 21.4 | 3.5 |
| Beef | 602 | 4.2 | 120.4 | 19.9 |
| Pork | 43 | 0.3 | 4.8 | 0.8 |
| Total | 14,249 | 100 | 606.2 | 100 |

The share of milk protein in organic protein production was 75.6%, the same values for beef, lamb and pork protein were 19.9%, 3.5% and 0.8% respectively (Fig. 2).

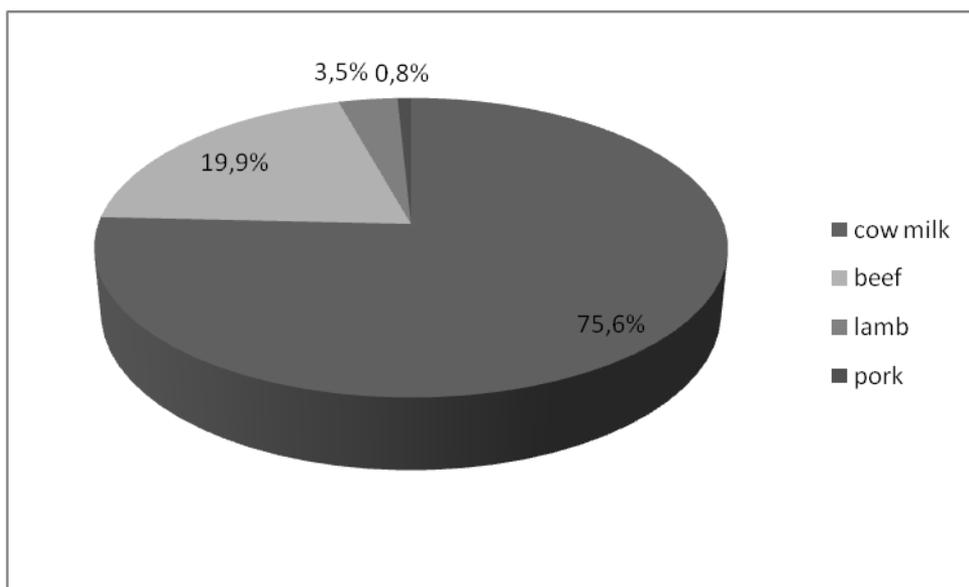


Fig. 2. Percentage of organic protein production in 2007.

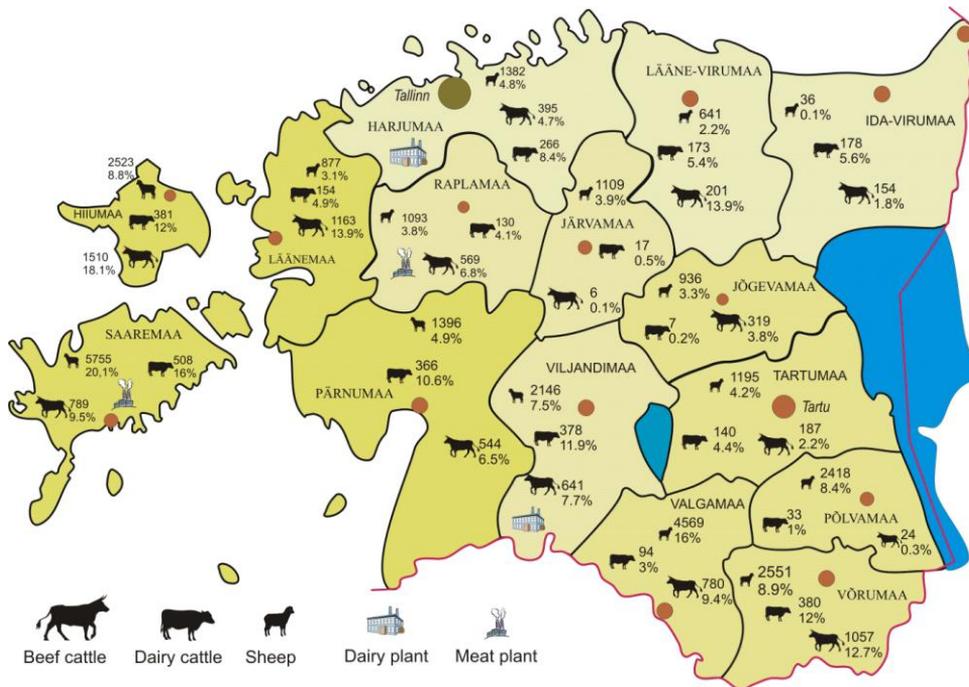


Fig. 3. Distribution of the number (and share) of organic dairy cows, beef cattle and sheep in Estonian counties and regions in 2008.

The European Commission is making efforts to increase organic production and consumption in Europe. The increase in organic production in the EU is about 2% per year. The share of organic land is greatest in Austria with about 11% of the arable land, Italy is next with 8.4%. The area under organic production accounted for 4% of the total utilized agricultural area in the EU in 2005 (Maamajanduse...2005). The consumption of organic food in Denmark was 5,8% of total consumption, predicted to be 6.5% in 2008 (Organic...2008).

In Estonia consumption of organic milk is 0.4% of the total milk produced, and organic meat accounts for 0.01% of total meat production (Kohalike ...2008). This is far less than the EC goals for organic meat consumption and measures should be taken to increase organic milk and meat production and the manufacture of products from this production.

Earlier, investigations carried out among Estonian consumers have shown that the demand for organic milk and meat products exceeds that available in the market (Pehme, Peetsmann, 2007). Although the share of produced organic milk exceeds that of meat, organic dairy products in Estonia are quite rare in the market compared to meat products. According to official data, the number of locations for the processing and slaughtering of organic milk and meat are few (Table 4). They are small and do not wholly meet the needs of the organic sector. There are only two licenced dairies and two licenced meat plants for this purpose (Mahepõllumajanduse... 2009).

Table 4. Meat and Dairy processing units for organic production in Estonia.

| Manufacturer | County | Products |
|-----------------------------------|-------------|--|
| AS Saaremaa Liha- ja Piimatööstus | Saaremaa | Refrigerated beef, lamb, pork; meat products of beef, lamb, pork |
| Märjamaa Lihatoöstus OÜ | Raplamaa | Refrigerated beef and lamb |
| AS Saidafarm | Harjumaa | Quark, cheese and yoghurts |
| Pajumäe talu | Viljandimaa | Quark and yoghurts |

Both of the dairies have been established by dairy farms and are able to process their own milk produced on-farm: 1–2 tons daily. The estimated daily production of organic milk in Estonia is about 40 tons, so the processing capacity of these dairies is about 10 times less than current needs. Also the geographical situation of these dairies is not favourable for most of the organic milk producers (Fig. 3). According to farmers' responses, about 70% of the organic milk produced is sold to dairies as conventional milk. About 10% is processed into organic dairy products and the rest is consumed as organic raw milk. According to investigations in 2007, only 14% of organic milk produced was consumed as organic milk (Kohalike... 2008). At least one additional dairy plant for organic milk should be established to solve this problem. Current production in Estonian conventional dairies is only about 40–60% of capacity (Põllumajandus...2008). The reorganisation of one or two of the smaller conventional dairies into organic dairies could provide an easy solution to the problem.

The situation for meat manufacturing is far better. Two licenced plants are capable of managing all organically produced meat in Estonia (Mahepõllumajanduse...2009). But they both are situated in the western region which is distant from abattoirs suitable for slaughtering organically reared animals, especially beef cattle raised on natural pastures. The transport of these animals over long distances causes considerable stress, which reduces the quality of the carcass and meat produced. Therefore, establishing a new abattoir should be considered.

CONCLUSIONS

Of total organic livestock production, milk is by far the most significant. On the other hand the increase in organic milk production has faltered recently. Despite subsidies available a great deal of organic milk is sold as if conventionally produced. The main reason for this is the lack of enterprises' potential for processing dairy products, distributing, and marketing them. The annual increase in organic meat production is about 20–25%. There is enough potential for the profitable processing of organic meat into meat products, but there is a problem in the geographical situation of abattoirs. There is a clear need for projects to improve the situation in the processing of organic milk and meat products.

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