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## **Food quality during game processing in logistic chain**

**Abstract:** Quality of game is more and more important for customers. How can we supply customers with good quality meat? Logistics process of meet of wild animals is a special field of foodstuff. We use it for supply chains, buy and sell products, for information and our knowledge.

I try to understand the logistic methodology for a special process. In agri-business sector we can speak, talk a lot about necessity of well organized networks, chains but there are not enough experts, workers organizing and doing this. You can find many parts of business activities using logistics at acceptable level and quality, but some area is not written in scientific style.

In my paper I would like to speak about a very special segment of agri-business sector, which is game in logistics process. I mention some information about quality and food safety aspects of it.

**Key words:** quality, logistics, game, supply chain.

### *Introduction*

You can find many hunters, shoots and farms after shouting or breeding wild animals in Hungary. The wilds are part of our national treasure; therefore the unlimited hunting for them is not acceptable.

Next step in process is also interesting. You must keep paragraphs of national civil law, requirements of food quality, safety and it can be profitable activity as well.

I would like to underline it is possible to fix and adopt, use logistic methodology for game production from shouting to selling for customers. This process is very important to ensure food quality and safety.

My survey presents this special food technology and logistics process in it. Some aspects of its education can be interesting for us to integrate curriculum of food engineering education as well.

In spite of the fact that they trace back to the early stage of human history, it is today's task to elaborate, using the modern terminology, the logistic processes scientifically, according to the different fields like game-processing, too. Commercial logistics in Hungary became more extended after the change of the regime, from the 90s. Logistic systems in the national economy have been developing since then. They connect to each other, they are in interaction with each other, the main source of which is the infrastructure (traffic, transport, information technology, technique etc.).

The competition is getting sharper in the agrarian market; too, its participants aspire to have more profit which can be reached only with the service of high quality. This competition makes the participants of the market reduce their expenses and increase efficiency. One of the main aims of the logistics in the field of food commerce is to meet demands of costumers with the smallest stock and expense possible, on a suitable level. To achieve this aim it is necessary to plan and carry out processes with exact calculations.

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## **Material and methods**

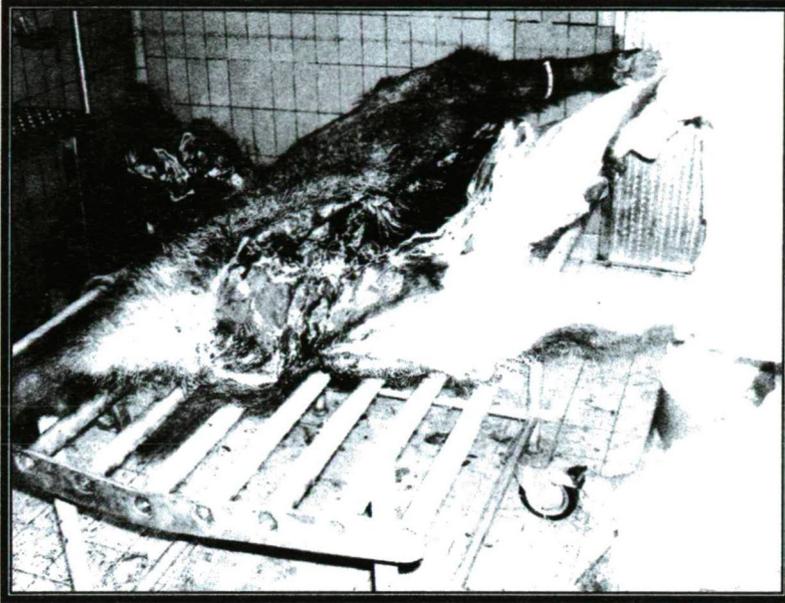
The agro-logistics, because of the different characteristics of products of agriculture and food industry, differs in certain aspects from other fields of logistics. Though there is an effort for equalization, both producers and processors often have to face the problem of extra-storing since agricultural production has seasonal features. In several cases there are products which need special way of storage (refrigerating plant, ice-rooms), so logistic centers suitable for other sectors cannot be established in their case. There are extra expenses on transportation both abroad and within the country (for example freezing or refrigerating carriages in the train, freezing or refrigerating lorries on the road, or other special means of transport). The especially strict shelf-life is a particular feature in case of meat distribution. After joining the European Union, the Hungarian internal trade had to meet the EU standards, since we became part of a unified European transport and logistic system (intra-EU trade). On one hand, it means an even more increased competition between foreign carriers, while on the other hand, it gives a chance for Hungarian firms to represent themselves in other markets, as well.

The market competition and the pressure to stand the strict regulations on veterinary and food hygiene fixed by the EU make all the participants (producers, hunters, contractors, processors, vendors) develop continuously. In its decree of 2005 the Ministry of Agriculture and Rural Development made the work of all participants of game-market difficult, a bit more complicated which should be reflected on by the participants of the process. Classification of the game on the scene has been compulsory by the decree, it is not only a formality, it shows irresponsibility to skim it, to leave it completely and to fill in only the game-ticket. There can be further expenses which can affect competitiveness disadvantageously in the short run, but in case of any problem – or in the whole logistic process – they will be considered as much bigger damages. *Crotalia* (game-identifying sign) is of this kind which is given to the game after being killed to follow closely. Those, who are untitled to hunt and processors are both burdened with further expenses as well to meet the prescribed hygienic requirements. The expense to eliminate the waste of processed or confiscated game is added to it. The situation is made difficult by the fact that while in other countries these expenses are covered from the state budget, in Hungary there is no chance to achieve it even by competitions.

One of the biggest problems of processors is that the seasonal feature of hunting with the only exception of the boar, which can be hunted throughout the year. Seasonality can be avoided by the purchase of bred game (Sinkovics – Bodnar, 1999; Bodname es mtsai, 2002).

The other problem is fluctuation of the needs. The customers' need can be satisfied during the year if the product is stored in refrigerating plants, however, it can be realized only with a high-level of processing and packing. Seasonality of the game means problem not only in the case of storage but in the human resources management, too. Since the game hunted during the season should be processed with the same number of workers as beyond it. This problem can be solved only in two ways: with overtime and with regrouping. Seasonal application of well-trained workers is not today's reality in the labor market. In case of game birds it can be realized so if the conveyor belt has two parts, that is, the process can be interrupted. Working overtime can be exhausting for workers and the necessary number of hours is more than it is allowed by the law.

In case of hirsute-skinned game (*Picture 1*) the suitable treatment and transport is especially important in the summer months when the rate of getting stuffy can increase to 10% from 2%. Partly, it can be prevented with the adequate evisceration (incision between the scapulas and chest), with special storage (the hanging bodies do not touch each other) and with quicker conveyance (transport from less places at the same time), though in the latter one it is worth calculating if the expenses are not too high.



**Picture 1. Skinning** (Source: made by author)

Poachers cause a considerable fall in income for the sector, since the game will be sold in the black market. According to careful estimations it is 20–30% of the yearly income, while others say that it can reach even 50%, too. It means serious danger for both veterinary and human hygiene because of the lack of compulsory veterinary examinations. (Kincses J.–Tili Sa., 2005)

90–95% of the processed game is exported, it represents 8% of the whole export directed to Europe. However, nowadays there are rivals – from far-away countries, as well. In the last few years New-Zealand, Scotland and South America exported deer-meat in huge quantities to the European market pushing the earlier suppliers out, so Hungary, too, that is why the Vadex has started to direct its export to Russia. New Zealand has been developing its deer-breeding for ages. It is financially supported by the state there, so the number of the bred deer-population exceeds 4 millions. It is a great logistic solution that processing takes place on the ships, so a considerable amount of money can be saved in the field of waste treatment. (R. Winkelmayer–C. Cenker–H-F. Zedka, 1996) The deer from New Zealand is of high quality, cheap, so it caused fall in demands toward the Hungarian game, the state purchase and the export prices have started to slump. With the reduction of prices the expenses were continuously increasing, especially the fees of services in the fields of food hygiene and animal health protection. In the EU epidemic prevention and the coverage of protection is the state's duty, and they mean cost balance.

**Table 1. Marketing of game 2001–2004**

Year of hunting	Income (from game)
2001–2002.	3,04 thousand million Fts
2002–2003.	2,63 thousand million Fts
2003–2004.	1,94 thousand million Fts

Source: Országos Vadgazdalkodási Adattár

In spite of the weakening export it is difficult to increase marketing in the internal market (Table 1), the surplus cannot be sold within the country, since most of the costumers consider the game expensive. Its price is very high in the supermarkets, so the product is regarded as luxury. It is shown by the game consumption of Hungary which has been 20 dkgs/person for years.

The game, because of its small rate in the meat market and processing, is a peripheral field of training agricultural and food engineers – with the exception of some specialized faculties. This practice should be changed so that students can have the opportunity to get to know this interesting, but special field. With the increase of the interest in the healthier lifestyle and eating habits, it is about an important hole in the market from the economical viewpoint, too.

### **Results and discussion**

The importance of game in the national economy should not be underestimated. However, its export has much larger significance than its consumption within the borders. No considerable increase can be expected in its consumption (because of the eating habits, price etc.) within the country, but there may be a growth in the interest of the foreign market, which demand high quality and safety. Also, the industry should meet the requirements on both quality and food safety. Maybe, we would buy game more often if it were regarded as bio-product. Its production could be realized, since conditions of breeding and feeding could be checked in game preserves. Though, it is possible that costumers would not like to pay the extra-price for it. We should not forget that game-husbandry, which is the processor of the game in this case, plays an other important role in the ecological balance, too, therefore only the controlled, conscious and legal process can have future. Demand for the conscious husbandry is gaining larger space, too. People will be aware of the fact that treasures (the wildlife, in this case) given by nature are not available forever in an unlimited quantity, so their unbounded killing, their wasteful use can drag the alimentary chain, and then the ecological balance in danger. It should not be allowed that the experience of obtaining booty or „fencing” cause such damages which result in irreversible processes. It is necessary to build up a consciously planned and organized process which utilizes the game in larger rate; it is logistics which helps to carry it out.

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