A European perspective on wild game meat and public health

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Summary
This paper presents information on wild game meat from the public health and inspection perspectives, taking as a starting point the preparation and final adoption of European Union Directive 92/45/EEC on public health and animal health problems relating to the killing of wild game and the marketing of wild game meat.

National definitions of small and large 'game' and the distribution and population levels of the different species can vary enormously. The vast majority of hunted game is killed with a firearm; other hunting methods (bow-hunting, trapping, capturing with decoys, etc.) are less significant.

The importance of trade in wild game among the different Member States of the European Union is not well known and those statistics which are available are often incomplete, so that an evaluation is not possible.

Wild game meat is the result of a process of natural selection and not of human 'production'. Veterinary health and hygiene legislation should cover and concentrate on the handling, processing, transport and storage of the meat of wild game.

Keywords

Introduction

In December 1987, a draft for a new legal instrument dealing with game meat was prepared by the European Commission Directorate General VI ‘Agriculture’ (Directorate B-II, Division 2 ‘Veterinary legislation’). This draft Directive aimed to establish requirements concerning public health problems affecting production and distribution of the meat, meat products and meat preparations from (domestic) rabbits as well as farmed and wild game meat within the European Community which, at that time, comprised twelve Member States.

According to this text, 'farmed game' referred to all 'wild mammals and wild birds bred and kept in captivity and slaughtered in a slaughterhouse', while 'wild game' was defined as 'wild mammals and wild birds shot in their environment'. It was obvious from these definitions (and also from subsequent and frequent contacts with the Commission) that the officials who prepared the Directive were not familiar with the 'production' of game meat, and of wild game meat in particular. No distinction was made between the different categories of game (ungulates, lagomorphs, game birds, etc.), between intensively farmed game species and truly wild specimens or even between domestic rabbits and wild animals.

Throughout the drafting, amending and updating process of the different working texts, as well as the consultation procedures of both the Economic and Social Committee and the European Parliament – the two European Economic Community (EEC) institutions which had to give an opinion before the eventual, final adoption by the Council of Ministers, the Federation of Fieldsports Associations of the European Union (FACE) constantly stressed that the creation of one single legal instrument to deal with such different categories of meat was unrealistic and impractical. Production, distribution, public health problems, veterinary inspection and almost all other conditions differ vastly for domestic rabbits, farmed game and wild game.
In October 1989, the Commission presented the final proposal – in the meantime the draft Directive had become a proposed EEC Regulation – which incorporated a considerable number of the amendments suggested by the hunting and game meat trade sectors, but still combined domestic rabbits, farmed game and wild game.

In the opinion of the Economic and Social Committee (adopted on 28 March 1990), the need for differentiation to be clearer in regard to wild and farmed game was stressed. The Committee also noted that the proposal by the Commission showed 'a singular lack of knowledge of the practical problems associated with wild game hunting'.

The opinion of the European Parliament which was adopted on 13 October 1990 also underlined the same point in the light of the particular conditions under which wild game is killed, namely, that 'rules concerning veterinary control and inspections should be realistic and practical'.

In November 1990, the Council of Ministers eventually adopted Directive 91/495/EEC concerning the public health and animal health problems which affect the production and marketing of rabbit meat and farmed game meat (2). Almost two years later (in June 1992) the Council adopted Directive 92/45/EEC which deals with the public and animal health problems linked to the killing of wild game and the marketing of wild-game meat (3).

The purpose of this paper is to present information on public health and inspection points of view, specifically for wild game meat.

The 'production' process: wild game management

The legal definition of 'game' can differ significantly from country to country. Certain species, such as rabbit (Oryctolagus cuniculus) or woodpigeon (Columba palumbus), but also wild boar (Sus scrofa) are sometimes considered as 'pests', and no specific rules govern their control and/or harvest. Under the United Kingdom (UK) Game Act (1831, amended in 1970), only the hare (Lepus europaeus and Lepus timidus), pheasant (Phasianus colchicus), partridge (Perdix perdix and Alectoris rufa) and grouse (Lagopus lagopus scoticus, Lagopus mutus and Tetrao tetrix) are strictly speaking 'game', but the Wildlife and Countryside Act (1981) also considers capercaillie (Tetrao urogallus), woodcock (Scolopax rusticola) and common snipe (Gallinago gallinago) as 'game'. With the exception of Scotland, wildfowl (i.e. ducks, geese and waders) are not game – so that for hunting these species, a game licence is not required, as is also the case for species of deer.

A uniform definition of the notion 'game' is therefore not easily given. From a practical point of view, for the purpose of setting rules for veterinary inspection, one should consider as game all mammal and bird species which may be killed under national (regional/local) legislation which deals with recreational (or professional) hunting, and which will (or may) be used afterwards for human consumption.

Certain 'game' species (mainly predators but also some rodents) are regularly hunted and killed as a means of population control, to reduce or avoid damage and sometimes also to harvest fur, but will normally not be eaten by people. This is the case for corvids as well as for the fox (Vulpes vulpes), beaver (Castor fiber) and marmot (Marmota marmota). On the other hand, meat from some 'unusual' game species such as the brown bear (Ursus arctos) and seal (mainly Phoca vitulina) is known to be used for human consumption and can even constitute a delicacy.

The distinction between 'large' and 'small' game is obvious for most species but can be difficult in some cases. Under the German hunting law (1952), roe deer (Capreolus capreolus) are classified as 'Niederwild' (small game), but capercaillie, golden eagle (Aquila chrysaetos) and white-tailed eagle (Haliaeetus albicilla) are 'Hochwild' (large game).

Distribution and population densities of all these different species can vary enormously. Some species are restricted to one or two countries: the Spanish ibex (Capra pyrenaica) is endemic to Spain, while white-tailed deer (Odocoileus virginianus), imported some decades ago from North America, only occur in Finland. Roe deer, on the other hand, have a very wide distribution range for a typically sedentary species: from the south of Spain, less than 100 km from the African continent, to north of the Polar circle in Sweden and Finland. Ireland is the only EU Member State where this species is absent.

Migratory bird species, such as geese and ducks, but also woodcock, pigeons (Columbidae spp.) and thrushes (Turdidae spp.), are almost by definition much more widespread, even though distribution during the breeding season will often be restricted to appropriate habitats, while wintering distribution will be influenced by available food as well as frost and snow conditions.

Throughout the range, game species are more or less intensively managed by landowners or owners of the sporting rights. This management includes specific habitat management measures, predator control, poaching prevention, (re-)creation of wetlands, feeding of animals during winter, providing drinking water during the dry season, etc.

For a small number of game bird species, in particular pheasants, captive breeding and rearing is undertaken 10
restock hunting areas or to boost the natural populations. Such birds are therefore only 'wild' and free-ranging from the moment of release into the hunting area: this may have some relevance to public health issues.

Table 1 gives data concerning national populations of a number of common game species.

The 'slaughtering' process: hunting wild game

Wild game remains 'wild' until captured or killed, legally or illegally. The vast majority of hunted game is killed with a shotgun, firing cartridges with about 30 g of small pellets (mainly lead but nowadays made also of steel, tin or bismuth because of the toxicity of lead, in particular for waterfowl) or a rifle loaded with supersonic bullets weighing 5 to 15 g.

Death is the result of the shock-effect on the nervous system or on other vital organs (in which case death occurs almost instantly), or of lethal damage to organs which could result in severe internal haemorrhages. In both cases, the effect of the projectile will be more or less 'traumatic' and will result in post-mortem lesions which can complicate or impede veterinary inspection: a veterinarian cannot base an inspection judgement on organs such as the liver or lungs which have been severely damaged by hunting, or are missing completely.

In certain countries, bow-hunting is legal and is becoming increasingly popular. Lesions to game killed with a bow are often less widespread and are more 'mechanical' than in the case of gun or rifle wounds. The total number of specimens killed with a bow and arrow is, however, insignificant – probably less than 10,000 per year for the EU – and carcasses will not generally be sold to the public.

This is also the case for certain game species, in particular thrushes, which are captured with traditional trapping methods (permitted under the 'derogations' clause of the EU

Birds Directive 79/409), as the sale of birds captured in this way is generally illegal (1).

A method used to capture considerable numbers of wild ducks is the use of decoys, which is still practised in the Netherlands and was also used in the UK, France, Belgium and Germany until a few decades ago. Ducks – mainly mallard (Anas platyrhynchos) – are attracted to specially adapted ponds, which are partly covered by nets. The birds are captured alive and are then despatched by hand. This technique is judged as being a quick and clean method of capture (which from a public health perspective is considered excellent). A similar method is used for rabbits which are chased from burrows by ferrets and captured alive in purse nets, from which they are quickly despatched.

Falconry and hunting with a pack of hounds are two further legal methods of capturing wild game, but these do not involve large numbers of animals. Consequently, game killed in this way will very rarely become available for trade.

Therefore, the use of a gun or rifle is not an absolute requirement for an animal to be considered as killed properly and legally and consequently fit for human consumption.

Some game species, such as rabbits, woodpigeons and wild boar, can be hunted throughout the year (at least in certain countries) while others are hunted in spring and/or summer (which is the case for roe deer); the main hunting periods commence in September and ends in February (i.e., between reproduction periods). Of relevance to public health is the fact that these months correspond to the cooler periods of the year; this will facilitate the preservation of fresh meat and will reduce the risk of contamination by insects.

Hunting is a recreational activity which takes place mainly at weekends and public holidays; this should be taken into consideration when planning veterinary inspections. Hunting activities conducted on Saturdays, Sundays and public holidays of the months from September until February account for over 80% of the European 'production' of wild game meat.

### Table 1
Estimated national population figures for common game species in five European countries

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(1) including Rupicapra rupicapra pyrenaica
Small game (birds, hares and rabbits) and wildfowl (ducks and geese) are shot in small quantities by hunters operating alone or with one or two friends, mostly accompanied by dogs. On more organised occasions, a greater number of hunters (between eight and fifteen) will, with the help of beaters, dogs, keepers and retrievers (those who retrieve dead or wounded game), shoot game which is driven towards them. On such days, the number of animals killed can be considerable, from around one hundred to well over five hundred pheasants, partridges, grouse, ducks and/or hares and rabbits.

After being killed, small game is usually kept unplucked, unskinned and uneviscerated, and is hung in a cool, dry place until transportation to a game dealer or processing house. Driven hunting is the main source for game meat which is sold to the general, non-hunting public. The majority of the game shot during the smaller-scale hunts is generally kept by the hunters for personal consumption; only a small proportion would be sold.

Large game (ungulates) are also hunted by individual hunters who will either wait for a particular animal to appear or will stalk or track the animal. In certain countries (for example Germany, Austria and the UK), this is in fact the most popular hunting method, and the majority of large game is shot in this way. Usually, the animal is standing still when shot, which results in better shot placement and consequently less wounding, and more satisfactory conditions from a hygienic point of view (less risks for contamination). After being shot, the animal is almost immediately ‘gralloched’ (eviscerated) and transported in satisfactory conditions to a game larder or a game dealer.

Evisceration is usually undertaken in the field, and abdominal organs are not kept, with the possible exception of the liver and sometimes the kidneys. Spleen, heart and lungs may be kept by the professional stalker or gamekeeper to feed to his dogs.

Male ungulates bearing antlers (deer), horns (chamois [Rupicapr a rupicapra], ibex [Capra ibex and Capra pyrenaica], mouflon [Ovis musimon]) or tusks (wild boar), all of which constitute a trophy for the hunter, are then decapitated, thus the tongue and brain are normally not available for veterinary inspection.

The preferred hunting method for species such as wild boar and elk (Alces alces) in certain countries (e.g., France, Spain, Sweden and Finland) involves ten to fifty hunters, accompanied by beaters and dogs. Shot placement can be less satisfactory with this method, however, as some animals will be moving fast when shot. Evisceration is undertaken at the end of each drive (‘drive’ is the technical term used to denote both the area of ground on which the beaters and hunters operate, and the period needed to hunt a particular piece of ground). Sometimes evisceration will be left until the end of the day: as this type of hunting takes place in autumn and winter, when temperatures are lower, few problems result from delayed evisceration. Trophy treatment is the same as for individual hunting.

Table II provides some data on average annual bags for a number of key species and countries.

The ‘marketing’ process: the game meat trade

It is very difficult to obtain reliable figures concerning the extent of wild game trade in the countries of the European Union.
Without statistics, an evaluation of the proportion of game meat trade resulting from the different types, methods or categories of hunting is not possible. As far as small game (e.g., pheasant, partridge, grouse) is concerned, the vast majority of game meat which is sold is ‘produced’ during days of driven shooting, where the kill is sufficiently large to justify the visit of game dealers to purchase and collect the birds shot.

Large game may also originate from driven hunting-days (as is the case in particular for wild boar and red deer [Cervus elaphus]) or otherwise may come from large estates where stalking results in carcasses having to be collected at regular intervals by game dealers.

In all other cases, where the number of animals shot is rather low, game is transported by the hunters to a game dealer (or to a retailer or restaurant) and is sold in small quantities.

One can assume that virtually every specimen of wild game killed in the EU is used for consumption. As production is insufficient to meet demand, considerable amounts of game are imported from non-EU countries.

Even though more statistics are available on the import of game (and game meat) from outside the European Union, the distinction between wild game and farmed game is not always clear. Although all game imported from Central and Eastern European countries can be considered to be of wild origin, this is not the case for imports from countries such as New Zealand, where game farming— in particular deer farming— is widely practised.

Meat is also sometimes imported as ‘game’ without further specification regarding the species concerned. Consumers may not be able to see, feel or taste the difference between South African springbok (Antidorcas marsupialis) meat and European roe deer venison, for instance. However, through better control and identification techniques, such practices of ‘mislabelling’ should become rare.

Game is traditionally ‘hung’ for a certain period of time (up to several days) in a cool, dry and fly-proof environment, before being processed. This practice of hanging game— unplucked, unskinned and uneviscerated for small game, unskinned for big game— is intended to improve the quality (tenderness, flavour and texture) of game meat, and does not result in unwanted proliferation of noxious germs, as demonstrated under experimental conditions. Wild game hung in this way presents no risk from a public health point of view, while carcasses from domestic or farmed animals will, under similar circumstances, deteriorate much more rapidly.

With recourse being made to modern meat-production methods, such as keeping game meat deep-frozen for several weeks or months before consumption, which also has a tenderising effect, the traditional hanging of game carcasses to ‘mature’ is becoming less common, but nevertheless is still practised.

The public health aspects of wild game meat

Among the different categories of products of animal origin intended for human consumption, wild game meat is unique. As mentioned earlier, wild game is not ‘produced’ in the same way as livestock and other farm animals: wild game meat can be considered as a true free-range and organic product, for which ante-mortem administration of potentially hazardous biological and chemical agents is by definition impossible. This makes an integrated approach to the production of wild game meat ‘from stable to table’ (as requested by some politicians, officials and consumer groups) not entirely appropriate.

Just as it would be impractical and unjustified to apply identical provisions to cereals on the one hand and hazelnuts and blackberries on the other, so wild game requires specific rules. Hazelnuts and blackberries are of course intended for human consumption, but are not the result of human production: they are natural products and no quantity of growth hormones or antibiotics can force Nature to produce greater amounts or better quality produce. Similarly, wild game meat is the result of a process of natural selection, an elimination of the unhealthy and thus potentially hazardous specimens.

However, despite the ‘authenticity’ of wild game meat, the absolute need to seek a high level of protection for consumer health must be recognised. The handling, storage and processing of wild game meat and meat products, especially in large quantities and on an ‘industrial’ scale, can indeed lead to risks of cross-contamination, the dissemination of potentially unhealthy products and a danger of food poisoning.

Veterinary health and hygiene legislation should therefore provide for the handling, processing, transport and storage of the meat of wild game. For the ‘production’ (the actual killing and the stages before skinning, plucking and evisceration of small game), greater responsibility for identifying possible health hazards could be vested in the hunter.

Relevant legislation, which stipulates temperature requirements or time targets in relation to the chilling of wild game carcasses, should be sufficiently flexible to take the practical circumstances of the ‘production’ process, i.e.
hunting, into account. This also applies to the stipulated period within which game needs to be transferred to a processing house: this should take into account not only geographical remoteness – much wild game originates from 'wild' regions such as the Scottish Highlands or other mountainous areas – but also other circumstances which may cause delays, such as weekends or public holidays.

Inspection of small wild game at the wild game processing facility can take place on a 'sample' basis, namely by inspection of a number of carcasses considered to be representative of all game from the same source (i.e. from a particular area or estate). The inspector, using professional judgement, should decide on the size of the sample according to the general condition of the game presented and any information supplied by the dealer or hunter. In the light of the results of the sample inspection, a more detailed inspection may be conducted, including the individual inspection of each carcass.

All wild boar carcasses (as well as those of other game species susceptible to trichinellosis, e.g., brown bear (Ursus arctos)), including those kept for personal or local consumption, should be subjected to a systematic examination for trichinae (Trichinella spiralis) using the digestion method of analysis, or muscle samples (e.g., jaw, diaphragm, tongue, intercostal muscles) from each specimen could be subjected to trichinoscopic examination.

Legislation should include provisions requiring hunters, gamekeepers and estate managers to note any unusual conditions observed during hunting and, where appropriate, during evisceration and bleeding of each wild game specimen, and to report any anomalies to the competent authorities (veterinary inspectors), in writing if necessary. Legislation should also contain precise but realistic guidelines and rules for hygiene standards and design of larders, collection centres and processing houses for wild game. These are all essential links in the chain, and can ensure that game meat is safe from the point of origin to that of consumption.
Carne de caza y salud pública: la perspectiva europea

Y. Lecocq

Resumen
El autor presenta información sobre la carne de caza salvaje desde los puntos de vista de la salud pública y de la inspección veterinaria, adoptando como punto de partida la elaboración y aprobación de la Directiva CEE/92/45 de la Unión Europea, centrada en la salud pública y los problemas zoosanitarios relacionados con la caza de animales salvajes y la introducción de su carne en el mercado.
Lo que se entiende por caza «mayor» y caza «menor», al igual que la distribución y la densidad de población de las distintas especies, pueden variar de un país a otro. La inmensa mayoría de animales salvajes a los que se da caza mueren abatidos por un arma de fuego. Los demás métodos de caza (tiro con arco, trampas, caza con reclamo, etc.) son menos utilizados.
Se desconoce la magnitud exacta de los intercambios de carne de caza en los distintos países europeos, y el hecho de que las estadísticas existentes suelan estar incompletas hace imposible una evaluación precisa.
La carne de los animales cinegéticos salvajes llega al mercado a resultas de un proceso de selección natural y no de «producción» humana. La legislación sobre sanidad animal y protección alimentaria debería concentrarse en la manipulación, el procesado, el transporte y el almacenamiento de la carne de animales cinegéticos salvajes.

Palabras clave

References