QUALITY REQUIREMENTS FOR MEAT PRODUCTION AT THE FARM LEVEL

Nils Beaumond¹, Louis Orenga², Pierre Sans³, Hubert Brugère²,³

¹ INTERBEV (French Interprofessional Association for Livestock and Meat), Paris, France
² CIV (French Meat Information Centre), Paris, France
³ Ecole Nationale Vétérinaire, Toulouse, France
h.brugere@envt.fr

1. INTRODUCTION

Since 1990, world beef production has been on the increase, especially in developing countries (Chatellier et al. 2003b), while beef consumption has tended to rise in developing countries, but on the whole has remained stable in developed countries. Total per capita consumption in the European Union has fallen over the last decade, but the knock-on effects of the second BSE crisis at the end of 2000 have nevertheless been cancelled out today (Chatellier et al. 2003a). Consumers' high expectations in terms of meat quality and the way in which the animals for slaughter are bred have turned breeding into a key component within the beef production industry. A clearer understanding of consumers' expectations should not only allow the industry to meet them, but also anticipate them.

In very general terms, quality can be defined by the way in which the characteristics of a product or service satisfy users' requirements. There are many definitions of meat quality for consumers. They vary according to the country and region, as well as the socio-professional category. They are frequently influenced by the media, as well as the initiatives and views expressed by various associations or non-governmental organisations. Perceived food quality refers to a complex set of expected qualities, featuring six aspects: nutritional, organoleptic, health, functional, social and symbolic.

2. CONSUMERS' AND CITIZENS' DIFFERENT EXPECTATIONS

During the second half of the 20th century in Europe, consumers were initially concerned with merely satisfying their basic needs, but subsequently began following health-food demands by looking for leaner cuts of meat. Between 1955 and 2002, British consumers, for example, focused on increasingly low-fat beef: the percentage of consumers preferring a rib of beef with 40% fat on the cut fell from 61.6% in 1955 to 23.5% in 1982 and then to 13.1% in 2002, whereas at the same time, the percentage of consumers preferring a rib of beef with 30% fat increased from 12.4% to 53.3% (Ngapo & Dransfield, 2006). Then the market splits into two segments - one relating to the satisfaction of everyday needs and the other concerning the demand for higher quality “festive”
products. Finally, the public is becoming more and more attached to the image of the meat products purchased (Bonneau et al. 1996). The expectations voiced by “consumers-citizens” in terms of beef quality greatly exceed the meat’s organoleptic and nutritional qualities alone and also touch upon food safety, animal welfare and the impact on the environment. Citizens’ expectations today in Europe are no longer merely to have access to meat and other animal products in growing quantities and at affordable prices.

“Consumers” decide for themselves and try to maximise their interests. As far as their diet is concerned, they merely choose between the products on offer with their different attributes. “Citizens”, however, try to justify with other citizens the way in which they view the common good. They lay claim to their right to choose and to have their say early into the production chain to define a product’s qualities, from which they will be able to choose as a consumer. On an economic level, the “social demand” expressed in this case by the “consumers” is a market-validated demand. The demand changes in line with consumers’ preferences and, above all, is expressed by the price that they are willing to pay for some product quality or other (Larrère, 2003). When closer attention is paid to “citizens”, the demand is vaguer and it is often difficult to know who exactly is voicing it. All the demands expressed in this case are not always compatible and we can rightly wonder whether some should be satisfied or not. Today, the “social demand” is mainly expressed by an urban population. Breeders might find this demand to be “unjustified”, since it is put forward by individuals that are unfamiliar with rural life, unaware of the real picture in breeding and manipulated by the media. However, is the demand not “justified”, insofar as all play a financial role in the aid that goes towards agricultural production?

Today's eater appears to be bewildered and increasingly wonders about the meaning and justification for consuming meat, which explains the fall in consumption of red meat since the early 1980s. The origins of the crisis of confidence towards modern-day agriculture and food can mainly be attributed to the widening gap between producers and consumers (Bonny, 2000b; Fischler, 1993). Consumer food products are turning into objects that no longer present the familiar image inherent in local production and consumption. They come from elsewhere; they have undergone unknown types of processing; they have been touched by unknown hands and might contain mysterious substances.

Furthermore, the vast media coverage showing pictures of healthy herds being slaughtered near the sources of certain infectious diseases to livestock to prevent any spread, such as the foot-and-mouth crisis in the UK in 2001, deeply shocked consumers and conveyed a highly negative image of the way in which farm animals are bred and treated (Huiskes et al. 2004). The question marks raised about the links between modern agriculture and breeding, the environment, food and health are important and can be found in several countries. Over the past few years, there has been a growing climate of suspicion, or in any case a certain lack of confidence in product quality and several complaints levelled at the agricultural world. From the end of the 1980s, these questions spread with the heightened sensitivity towards various forms of pollution (liquid manure and nitrates), and then from the mid-1990s with questions concerning the safety of food with the emergence of BSE, the manufacturing process for cattle feed and debates focusing on GMOs.

The negative aspects reported by consumers include:

Concerning the safety of meat products:
- the persistence of any residual effects of veterinary drugs,
- the presence of various contaminants in cattle feed, which might then wind up in products of animal origin,
- the presence of micro-organisms pathogenic to man (salmonella, enterohaemorrhagic Escherichia coli, including E. coli O157:H7, BSE agents, etc.).
Concerning farm animal welfare:

- poor living conditions,
- poor transport conditions.

Concerning the environment:

- poor management of liquid manure and manure.

The negative aspects relating to a lack of organoleptic qualities or low nutritional quality of meat most often come after those associated with poor breeding conditions.

However, although concerns are reported in terms of the safety of meat products or dissatisfaction about their quality, and despite the continuous coverage given to sometimes highly alarming cases in various parts of the media, it remains relatively balanced and does not concern the majority of the population. The criticisms made are more frequently centred on the techniques used in agriculture and the food-processing industry than on the responsibility of the actual farmers (Bonny, 2000a). As such, aims to lower costs and improve productivity are now compounded by new requirements for both the breeding sector and the meat processing industry:

- quality, particularly in terms of composition, fitness for processing, flavour, tenderness and health value,
- food safety, especially since the methods for detecting the different chemical or biological hazards continue to become more advanced,
- preservation of the environment and reducing pollution,
- search for techniques meeting with greater social acceptance in terms of respect for animal welfare.

3. GUARANTEEING THE ORGANOLEPTIC QUALITIES OF MEAT

Of the several factors that determine meat quality, we can identify those that are closely related to the animal and more particularly to the biological characteristics of the muscle and fatty tissue, which can be controlled during the breeding stage, and those that hinge on the conditions for processing muscle into meat (slaughter, maturing, conservation) and possibly meat into elaborated products (Bonneau et al. 1996). As far as beef is concerned, tenderness stands as a major preoccupation. Controlling the degree to which the tenderness may vary can help to better satisfy the expectations of the buyer (consumer, restaurateur, processor, etc) who is looking for consistency in this quality for given cuts. For veal, the visual appearance (light-coloured and exudate-free) counts as one of the most important criteria in the consumer's choice. The genetic selection of cattle has improved the tenderness of several cuts, particularly in the hindquarters, due to a lower content and greater solubility of the collagen, and an increase in the proportion of fast-maturing glycolytic fibres. Increasing the speed at which animals grow by changing the quantity and balance of their feed produces the same result. However, doing so has a rather adverse effect on the flavour due to the reduction in intramuscular fat.

One of the negative aspects that can be put forward by the consumer is the push for high productivity and “industrial” agricultural practices which, for reasons of profitability, lead to nondescript foodstuffs. One of the responses given by the production and animal product processing industries is the vertical differentiation of the products offered to the consumers with a market segmentation and the development of quality labels and kite marks: economically speaking, increasing the sale price for these products would enable more traditional and extensive methods to be used, for which it would be an important step to notify the consumer. Furthermore, the demand for "natural" products not only refers to the technical aspects, but also the symbolic aspects. Natural
products often conjure up the notion of origin, the nourishing earth, something that can protect against the worries of what the future holds in store. Therefore, it is not “nature” that is being asked for, but rather safety and a need to know where our food comes from (Hubert, 2000). The importance placed in the drive towards quality in the meat industries increasingly corresponds to the consumers' demand for the product's guaranteed origin, combined with clear and reliable information concerning the specifics of the product marketed. Certifying that meat and the associated production process comply with the specifications drawn up by the different players in the industry, and vetted and checked by an independent organisation, is a relevant approach in response to consumers' questions (Lindgreen & Hingley, 2003). But behind a sign of quality, we can also find areas and people whose characteristics and expertise respectively can help to produce specific, recognised products, such as the case in France with the "Maine-Anjou" AOC quality mark for beef (Noury et al. 2005).

4. GUARANTEEING SAFE MEAT

Recently, the BSE crisis (bovine spongiform encephalopathy) drove the issue of meat product safety into the heart of the public debate. Although generally handled in professional circles (vets, breeders, abattoirs, etc.), this issue sparked some intense discussions in the political and media arenas.

Sociological surveys show that most consumers are not obsessed with the unrealistic quest for zero risk, and the relationship to food is not viewed from an irrational perspective (Joly, 2003). The risk is just one of many elements in the relationship to food. There is nothing new about the concern for healthy food, but the vulnerability of our societies is such that various factors may combine to generate crisis situations that are often out of all proportion to the severity of the hazards. The consumer is not necessarily in the grip of any psychosis or irrational fears, but the determination of health and administrative authorities to show complete transparency in the decision-making processes can trigger an emergency crisis. This sometimes highlights the uncertainties surrounding the potential danger, drawing attention to data that can lead to a feeling of insecurity. Media coverage of an extreme safety-first principle exacerbates the feeling. The hazard incurred is even less acceptable, since it is generated by institutions that are supposed to provide greater well-being.

Back in 1997, the Food Safety and Inspection Service (FSIS) of the United States Department of Agriculture (USDA) stressed the importance of the farm-to-table HACCP in order to improve safety for food of animal origin (Billy, 1997). In 1994, following a spate of toxic infections due to undercooked hamburgers in fast-food restaurants, changes were made to the strategy in place for guaranteeing safe meat by reducing the presence of pathogenic bacteria. Preventive measures are of the utmost importance, because the safety of meat products cannot be ensured by means of a bacteriological analysis alone. An effective strategy for controlling meat safety must therefore focus on the entire industry, from the farm to the table, and not only the facilities subject to official health and safety inspections. During the breeding stage, the industries' approaches can be improved by drawing inspiration from the hazard analysis, although it is not always easy to check whether some measure or other has a real effect on reducing the carrying or excretion of pathogenic microorganisms. That is why voluntary programmes have been set up, based on the HACCP principles, which are aimed at helping cattle breeders and beef producers to identify and rectify the points in the chain that could not only lead to dangers for the consumer, but also substandard quality, if left unchecked. During the breeding stage, these best practices help to prevent the emergence of both biological and chemical hazards by limiting the presence of any veterinary drug residue or residual pesticides or environmental pollutants that might be present in the food or water given to the animals.
Based on training and the high level of involvement for breeders, as well as the checks and inspections carried out by independent organisations, the meat quality assurance programmes are in keeping with the spirit and requirements of current legislation and furthermore provide consumers with greater details on the commitments made by trade professionals to improve the quality of the meat and the production methods. In France, quality drives are spreading to farms, particularly via the charter of best breeding practices. The quality principle is aimed at guaranteeing quality throughout the industry, and vets, by playing a role in the quality of cattle production, must incorporate their action in this process in line with the expectations of the breeders and the other players in the cattle industry (processing companies, agricultural trade organisations, veterinary services, and so on) and knowing the expectations of the consumers, the last link in the chain.

The field of activity covered by vets in breeding is an especially easy target, since it cuts across life sciences, cutting-edge technologies, health and food, all of which arouse the fears and passions of the general public. Admittedly, there are intrinsic risks in using drugs in breeding (innocuousness, residues, antibiotic resistance, impact on the environment), but particularly among consumers who are not clear on the reasons for using the drug on farm animals, which creates a climate of suspicion. The use of drugs in breeding first of all plays a contributory role in providing man with healthy food derived from sound animals and without denying the risks, the drugs need to be put back in their rightful place and information provided on the methods already implemented to control them. At the same time, the recommendations need to be given back their true meaning, and traceability and quality-driven processes must be implemented to guarantee compliance with regulations, avoid the hazards and act in complete transparency.

The cattle industries are expecting a vet who can guarantee the safety of the productions, through the health management of the herd, based on reasoned, well laid-out directions that protect the environment (Magras et al. 2002). Traceability, or the ability to check back through the history, the implementation or location of what is under consideration, the drugs and treatment received by the animals is one of the main expectations concerning vets. This must equate to the issuing of accurate directions stating not only all the prescribed drugs but also the treatment given by the actual vet. The identification number of the animal treated, the type of drug, the dosage, the route of administration, and the date and length of treatment must be correctly recorded. All the data must make it easier to fill out the breeding register which, for several breeders, continues to represent an additional administrative hurdle, whereas it should be seen as a true health record for producing useful results after analysis. The reduced consumption of veterinary drugs and particularly antibiotics in farm animals is a strong demand from meat consumers, as relayed by the breeders. This involves highlighting the health measures relating to breeding management and therefore amounts to developing the advice and training actions for breeders, accompanied by the necessary drug treatment. This must lead to reasoned directions based on a good knowledge of the herd's health status and accurate usage recommendations (correct administration practices, correct conservation of drugs, elimination of treatment waste, waiting time for food of animal origin, etc.) associated with the issuing of drugs.

In the European Union, as part of an objective defined by Regulation EC 178/2002 relating to the global traceability of products “from farm to fork” and the primary responsibility of operators in the food sector, the new regulation governing food hygiene applicable since 1st January 2006 (regulations EC 852, 853 and 854/2004) has imposed the obligation on all animal industries to send information between the breeding sector and the first processing sector -the abattoirs. This information is known as the “information on the food production chain” and may concern not only the health status of the cattle farm, the health status of the animal(s) when the information is sent, the treatment given, the illnesses arising in the animals for slaughter and, if necessary, in the animals already slaughtered, the health inspection reports of the farm animals already slaughtered, but also the results of any analyses concerning the animals, their feed, their water, the environment.
and even the production data. For calves, this information will come into force on 1st January 2009, and for cattle, on 1st January 2010. The close link between information on the food production chain and the health control plans implemented by abattoirs will provide a true guarantee as to the safety of meat.

Finally, optimising the detection and analysis of the emerging pathology is a challenge to be faced, in reference to the health crises that threatened or could threaten the long-term prospects of the animal industries and particularly the cattle industry (Barnouin & Vourc’h, 2004). Synergistic ties need to be forged between the players involved in health (vets, breeders, researchers, health managers, local authorities) to guarantee an effective level of vigilance towards any potentially emerging diseases (new diseases or a re-emergence of known diseases).

5. ENSURING RESPECT FOR THE ENVIRONMENT

When respect for the environment is brought into the spotlight (pollution problems caused by noise and the smell around certain cattle farms), it is important to know who is doing so: consumers, citizens or people living near cattle farms, and the way in which they are expressing their views on the subject: market research, surveys, media relays or militant actions by certain associations.

Relations between cattle breeding and the environment are complicated (Chatellier & Vérité, 2003), with positive implications (occupation of land and maintaining the meadows, maintaining biodiversity, high level of autonomy for animal feed) and some negative implications (increased nitrate and phosphate content in water, methane emissions whose contribution to the greenhouse effect is nevertheless fairly low on a global scale, particularly compared to marsh land). These relations are closely dependent on technical factors, such as the storage conditions for breeding effluents and the conditions for fertilising the soil, and they are influenced by economic and political issues, such as new statutory requirements that most often entail increased production costs, as well as whether compliance with environmental commitments is or is not taken into account in the method for allocating entitlement for subsidies or in establishing the price of the products sold. A more effective use of inputs (nitrogen, phosphorus) by adjusting the supply in line with actual plant requirements and the more effective management of manure spreading can help to limit water pollution. Furthermore, research into nutrition has made it possible to fine-tune food recommendations to better adjust the nutritional intake to animals' requirements, which cuts down on discharges into the environment.

6. GUARANTEEING ANIMAL WELFARE

It is usual to say that respect for farm animals stands as a major social demand; however, although opinion polls reveal that citizens condemn the fate reserved for animals in some so-called “industrial” breeding systems and especially some types of rearing systems for calves, pigs and poultry, there is no certainty that consumers are willing to pay more for meat that has come from animals bred in conditions certified as compliant with their welfare. Admittedly, the vast majority of our fellow citizens are concerned about the fate in store for farm animals. They are sensitive beings that should not be treated as objects. It would be disgraceful to make them suffer with full knowledge of the facts. However, citizens project the affective relations that they have experienced with pets onto farm animals and their farm. The campaigns led by certain farm animal protection associations can accentuate some citizens' expectations beyond all proportion and cause the authorities to see them as the expectations of all consumers.

The appropriate framework for assessing the welfare of farm animals is based on checking for compliance with the following five basic elements (Anonymous, 1993):

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- the animal must be correctly fed and watered,
- it must be kept in comfortable conditions,
- in conditions preventing any pain, injury or disease,
- enabling it to display normal behaviour,
- and preventing it from being scared or stressed.

Implementing measures to improve the animals' welfare, whether at the farm or during transport, must not compromise the animals' health, the safety of the meat coming from the animals or the safety of the working conditions or the health of the breeders and transport drivers. Statutory measures must be based on both the results of scientific research and professionals' experience (Huijse et al. 2004). Cattle live in permanent groups, within which they develop stable relations of dominance as well as affinities, knowledge of which will help the breeder to better preserve the welfare of the animals within the group and avoid any situations leading to discomfort and even stress (Bouissou & Boissy, 2005). This particularly holds true for fairly dense cattle populations in farm buildings as well as out in the open air, where the maintaining of the social links established from a young age determines the way in which the herd occupies the space and allows for a more effective food supply.

Breeders are always ready to improve the rearing conditions for their animals, but they obviously need to be able to make a profit and there needs to be a difference between “standard” production and the signs of quality with improved production. Furthermore, the issue of farm animals' welfare cannot be split from the working conditions, which represent the living conditions for both the animal and the breeder (Porcher, 2001). Consumers need to be shown how the issue of sense of work and the associated moral values play a full part in the implementation of practices respecting the animals' integrity and independent needs. It is essential to think of welfare along the lines of relations and communication between the breeder and the animal.

7. CONCLUSION: ANTICIPATING EXPECTATIONS TO PROVIDE A BETTER RESPONSE

Different facts of society were revived by the BSE crisis: health risks, the risk of progress gone unchecked, the consequences for our future with the advent of globalised trading, and the loss of confidence in institutions. It can clearly be seen that our fellow citizens today are rejecting progress, especially in the field of agricultural production. Technological progress often raises fears, and the rejection of innovation firstly concerns life sciences and is particularly clear-cut in terms of food. The ideas that “wrongdoings” in agriculture and the drive for high productivity are to blame for defects have spread, hence sometimes the nostalgia surrounding the idealised original nature before the advent of technological progress. In addition, the crises often reveal how the public's ready-made ideas are out of step with the real picture of the practices in the farming world and the processing of products of animal origin. The gap between the professional realities in the breeding world and consumers' expectations is vast. The divide can initially be narrowed by modifying and improving practices if deemed to be unacceptable in the eyes of the public, but especially by explaining the reality behind breeding and why certain practices are used, at all costs avoiding painting a false picture of traditional or old-style methods when it is not the case. Doing so would run the risk of provoking even greater trouble and cause an even more violent rejection when the real professional practices are revealed. Information campaigns targeting the public need to be to the point, teaching consumers about what really goes on in the agricultural world, meeting their expectations and above all allaying their fears by explaining, rather than by simplistic messages of reassurance. The industry has to take a bold step in adopting a policy of openness and be quick in mentioning the basic notions and taking account of the social, environmental and ethical dimensions of breeding.
Consequently, we can easily define three areas of requirements voiced by consumers of meat, particularly beef: health requirements, commercial requirements focusing on the diverse characteristics of the meat marketed, encompassing not only the organoleptic aspects and the ease of use, but also calls for nutritional information, and finally societal requirements mainly covering the breeding-related aspects, such as animals' welfare and respect for the environment. The responses to these requirements are also different. The regulations set up by the authorities are aimed at meeting health and safety requirements, and guaranteeing honest trading and the truthfulness of the information provided to consumers. The collective voluntary processes implemented by the different professionals in the meat sectors are mainly intended to respond to societal requirements. Voluntary processes can also be decided on by some or other group of operators to meet specific commercial requirements, especially those relating to the segmentation of the market and product offerings with specific qualities. Generally speaking, all information provided has to be checked, by the official inspection services for enforcing regulations and by independent organisations for implementing the voluntary processes, which helps to guarantee real traceability of the meat and the information concerning its method of production.

To respond to consumer behaviour, the industry needs to explain the segmentation of a market, develop diverse quality strategies and analyse the quality/price ratio to offer products that are practical or providing a service. In response to the citizen's standpoint, the industry needs to be able to reply to any information requested by more than 50% of the population and which might apply to more than 50% of production. The sectors affected by this case are mainly food safety, the product's generic characteristics and the conditions governing production, processing and distribution. To meet the consumer's requests for information, the appropriate medium is mainly related to the actual product. Citizens' expectations will be met more through institutional media set up by a non-commercial entity.

The expectations need to be identified and differentiated in order to provide the appropriate response. It must also be borne in mind that consumers' expectations are more demanding when a crisis hits a sector involved in the production of food of animal origin. To meet the expectations, the regulations or voluntary processes are going to impose greater constraints on the different industry operators, but generally, when the crisis has abated, the level of requirements remains the same and there is no return to the level preceding the crisis.

It is important to anticipate and interpret citizens' demands, if necessary by means of targeted public information, and to try to adjust them. It would seem to be necessary to walk a tightrope between two pitfalls:

- the refusal to listen to certain consumer demands or fears by calling them irrational or condemning them,
- the complete opposite by taking the demands too literally to justify its activity in the eyes of the public, without putting them into perspective, prioritising them and especially standing back from the situation with a longer-term vision.

The social demand expressed can sometimes reflect sectional preoccupations, with some groups having more means at their disposal to make their expectations heard and taken into account, hence the potential bias in terms of protection of the environment or respect for animals' welfare.

8. **SUMMARY**

Consumers' high expectations in terms of meat quality and the way in which the animals for slaughter are bred have turned breeding into a key component within the beef production industry.

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A clearer understanding of consumers' expectations should not only allow the industry to meet them, but also anticipate them. As for “consumers-citizens”, the expectations for beef quality greatly exceed the meat's organoleptic and nutritional qualities alone, and also concern the fields of food safety, animal welfare and environmental impacts.

To meet these expectations, quality-driven approaches are initiated by the different sector players, particularly the breeders. At the same time, major and increasingly stringent regulations govern the production and processing of meat to comply with safety, environmental and ethical requirements. The breeding sector, the first link in the industry's chain, is fully committed to the quality approaches and the programmes for controlling the health quality of the meat.

The meat industry needs to listen to the consumers' demands and fears to interpret them and try to formulate a response, as well as sometimes adjust them by providing information that is unknown to the public but required to promote a good understanding of trade practices.

9. KEY WORDS

Beef, breeding, quality, food safety, animal welfare, environmental pollution.

10. RESUME

Les fortes attentes des consommateurs en matière de qualité des viandes et sur le mode d’élevage des animaux dont elles sont issues font de l’élevage un composant majeur de la filière de production de viande bovine. Mieux connaître les attentes des consommateurs doit permettre non seulement d’y répondre mais aussi de les anticiper. Pour les consommateurs-citoyens, les attentes de qualité de la viande bovine dépassent largement les seules qualités organoleptiques et nutritionnelles de la viande, mais concernent aussi les domaines de la sécurité sanitaire des aliments, du bien-être des animaux et des impacts environnementaux.

Pour répondre à ces attentes des démarches qualité voient le jour, initiées par les différents acteurs des filières et en particulier par les éleveurs. Parallèlement, une réglementation importante et de plus en plus exigeante encadre la production et la transformation des viandes pour répondre aux attentes d’ordre sanitaire, environnemental et éthique. Premier maillon des filières, le secteur de l’élevage est totalement impliqué dans les démarches qualité et dans les programmes de maîtrise de la qualité sanitaire des viandes.

Il faut entendre les demandes et les craintes des consommateurs pour pouvoir les interpréter et tenter d’y répondre, mais aussi parfois pouvoir les moduler par l’apport des informations méconnues du public mais nécessaires à une bonne compréhension des pratiques professionnelles.

11. MOTS CLES

Viande bovine, élevage, qualité, sécurité des aliments, bien-être animal, pollution de l’environnement.

12. ZUSAMMENFASSUNG

hinaus. Sie betreffen auch die Hygienequalität der Lebensmittel, das Wohlbefinden der Tiere und Auswirkungen auf die Umwelt.

Um diese Ansprüche zu erfüllen, werden, initiiert durch die verschiedenen Beteiligten in der Produktionskette und insbesondere durch die Viehzüchter, Maßnahmen zur Qualitätsverbesserung ins Leben gerufen. Daneben unterliegt die Fleischproduktion und -verarbeitung einer großen Anzahl an Vorschriften, die immer höhere Anforderungen stellen, um die Ansprüche in Bezug auf Hygiene, Umwelt und Ethik zu erfüllen. Als erstes Glied in der Produktionskette, ist der Bereich der Aufzucht vollständig in die Maßnahmen zur Qualitätsverbesserung und die Programme zur Überwachung der Hygienequalität des Fleisches einbezogen.

Man muss die Wünsche und Ängste der Verbraucher anhören, um sie interpretieren zu können und daraufhin die Ansprüche gegebenenfalls erfüllen zu können. Manchmal muss man aber auch auf die Meinung der Verbraucher einwirken, indem man über der Öffentlichkeit unbekannte Fakten informiert, die für ein richtiges Verständnis der Produktionspraktiken erforderlich sind.

13. SCHLÜSSELWÖRTER
Rindfleisch, Zucht, Qualität, Nahrungsmittelsicherheit, Tierwohlfahrt, Umweltverschmutzung.

14. RESÚMEN
Dadas las grandes expectativas de los consumidores en cuanto a la calidad de las carnes y al modo de criar a los animales de los cuales se extraen, la cría constituye un componente esencial en la fuente de producción de carne bovina. El conocer mejor las expectativas de los consumidores debe permitir no sólo responder a ellas sino también anticiparse a ellas. Para los “consumidores-ciudadanos”, las expectativas de calidad de la carne bovina rebasan con mucho las cualidades organolépticas y nutricionales únicas de la carne, aunque también atañen a los ámbitos de la seguridad sanitaria de los alimentos, del bienestar de los animales y de los impactos medioambientales.

Para responder a estas expectativas, salen a la luz gestiones de calidad iniciadas por los distintos actores de las fuentes de producción y, en particular, por los criadores. Paralelamente, una reglamentación importante y cada vez más exigente enmarca la producción y la transformación de las carnes para responder a las expectativas de orden sanitario, medioambiental y ético. El primer eslabón de las fuentes de producción, el sector de la cría, está totalmente implicado en las gestiones de calidad y en los programas de control de la calidad sanitaria de las carnes.

Deben atenderse las solicitudes e inquietudes de los consumidores para poder interpretarlas e intentar darles respuesta pero también, en ocasiones, poder matizarlas para aportar información desconocida para el público, aunque necesaria para una buena comprensión de las prácticas profesionales.

15. PALABRAS CLAVES
Carne de vaca, cría, calidad, seguridad del alimento, bienestar animal, contaminación ambiental.

16. REFERENCES