Session 9

Meat quality requirements

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"MEAT QUALITY REQUIREMENTS TO-DAY AND IN THE NEXT TEN YEARS IN DIFFERENT WORLD MARKETS"

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I would first of all like to thank the Organising Committee for the invitation to address the Congress.

My organisation GIRA has been active in economic research in meat markets since 1973. We cover all the four major meats in their descending order of volume importance: pork, poultry (mainly chicken), beef / veal and sheepmeat. We analyse from their market impact all areas of the meat chain: breeding / selection, fattening, inputs such as feed and pharma, slaughtering, cutting, further processing, distribution via retail and food service and consumption. The last is the finality for all parts of the "chain" even though it is frequently ignored by many of the upstream operators. In this conference you have heard and will hear many papers concerned with the technical aspects of animal rearing, meat production and meat safety. In my presentation on quality requirements, it is hardly necessary to repeat that hygiene / safety is now the N°1 message for the consumer in the developed world. BSE, E-Coli, Dioxin, salmonella etc have entered the public psyche and the media takes every opportunity of "stirring the pot". In the developed world, major food scares concerning meat are the only major threats to meat consumption, as vegetarian movements and "meat alternatives" (we also do research in this area) have made very little impact on the consumers attachment to meat: centre of the plate, texture, taste, protein and still the visible symbol of a "square meal". There is only one country – **India** – in the world (albeit with 17% of the world's population) where there is a strong vegetarian tradition apart from the normal Hindu perceptions on beef (although not buffalo). The BJP party has fostered these general anti-meat eating prejudices, and there have been attacks on KFC outlets. MC DONALDS has a wary toe-hold in India and the "BIG MAC" there is sheepmeat based. India is a poor country but with the same GDP per capita as Pakistan: the latters per capita meat consumption is 14 kg compared with India's 5 kg.

We now move on to some specifics which concern the animal species, fattening systems and conditions, slaughtering etc. I have not tried to be exhaustive but to highlight the main ones.

BEEF: in two major markets –USA and Japan– there is a preference for marbled beef, achieved by a feedlot stage of 110 – 120 days based on maize. There is a wide variety of cattle strains in the USA but considerable carcass and eating quality homogenation is achieved by the feedlot stage. In Japan there has been some shift on price grounds to imported grass fed beef mainly from Australia but the latter still has to keep the majority of its supplies for Japan produced via the feedlot system. As you are aware, feedlot usage in South America is very small as it is in West Europe. There are two other factors related to beef consumption

- the significant beef based **processed meat** products are sterilised and consist of old products such as corned beef. They are slowly losing market share. Until recently, and even in the USA there had been little marketing work to push beef into "convenient meal solutions" and make it more adapted to a micro-wave housewife with low culinary skills. This is now changing in both the US and West Europe and serving to hold the decline in beef consumption
- beef is hindquarter and forequarter: the hamburger has helped the valorisation of the latter but not enough attention has been put into isolating and valorising the different muscle components of forequarter and to put them into easy to cook forms. Most forequarter cuts currently require long cooking times and some culinary skills and these are no longer part of most housewives competence.

SHEEPMEAT: I have put this second after beef as it is the other non-intensively fed species. Sheepmeat consumption varies enormously and is heavily influenced by the degree of presence of a sheep rearing tradition. The highest per capita consumers are New Zealand (30 kg per capita) and Australia (17 kg per capita) although on a long term slow decline. Inside the EU with an average of 3.5 kg per head, Greece stands out with 13.5 kg, and due to a sheep rearing tradition. Sheep / goat meat is the preferred meat (and the most expensive) in India and it is still the favoured meat (although losing to poultry on price grounds) for the Gulf states and other Arab countries of the Middle East. There is an extensive live trade from Australia (and New Zealand) to the Gulf states to meet the ritual requirements of the HADJ and the perception that live gives control on fresher meat.

In West Europe, lamb is an upmarket festive meat requiring culinary skills. The preference in France is for a fatter lamb than in for example the UK and there is some maize finishing in France with higher production costs.

Mutton everywhere fulfils a rôle for cheap protein in the less affluent countries. For the major world exporter – Australia – it is a by-product of the wool system and disposed of at any available prices in world markets.

A problem for sheepmeat in general is that there is virtually no further processed product available. There is some traditional "ingredient" usage for mutton in for example Japan but no added value modern products. All sheepmeat has therefore to be cooked hence the barbecue promotion in the USA by Australia and New Zealand. In the EU where New Zealand enjoys a 227 000 ton quota, there is some deliberate move by this supplier from frozen to the higher quality chilled product with positioning problems for local producers.

We now move to the intensively fed animals – pigs and poultry.

PIGMEAT: As you are probably aware, China represents about 50% of world production. This production is still strongly based on traditional local breeds, household production structures and feed from household and agricultural waste. China does not enter into the world pigmeat trade and is likely to stay closed up to 2010, despite probable W.T.O entry.

We focus then on the two major producing / market zones: EU and North America and the two major import markets – Japan and Russia. From the standpoint of production in both the EU and USA, there is increasingly standardisation on a limited number of breeds with a high resort to hybridisation. Maize / soya (or wheat / soya) are the major components of feed rations. In Europe there are three exceptions:

- the Iberian pig in Spain used extensively for Serrano ham production
- the heavy Italian pig (50% more than the average EU carcass weight) used protectively for national processed specialities such as Parma ham
- the heavier Belgian pig which in export markets in the EU gives for example a heavier ham for Italian or German processers.

There are welfare considerations in pig production –initiated by the UK– such as the sow tether ban but it is not proved that they have any impact on meat eating quality.

The significant feature of pigmeat markets is the high percentage (55-60%) of the carcass weight which is put into processed products. These products include cooked and cured ham, luncheon meats (from chopped shoulder) and a huge variety of sausage products, ranging from salami type to the fresh British sausage. These are part of national traditions particularly in Germany, France, Spain and Italy. Germany has many varieties of sausage. Most sausages are pigmeat based although there are some pork / beef mixtures.

There are several advantages for the meat chain from a high processing presence:

- convenience: many products can be eaten cold and do not require cooking (85% of German evening meals are cold meals)

– spread of meal functionality and diversity of usage. There is for example considerable pork consumption at breakfasts via sausages and bacon. (There is as yet no poultry consumption at breakfast). This is the main reason for the high per capita consumption of pigmeat in both the EU and East and Central Europe
– image: hams and sausages unlike the fresh anatomical cuts such as chops and roasts have a low connotation with the death of an animal in an abattoir.

The modern Western consumer wants the pleasure and functionality of eating meat but does not want to be reminded of the abattoir operations which are required.

The percentage of pigmeat which is consumed in further processed form steadily increases in West Europe and the USA, essentially for these lifestyle reasons.

There are two major pigmeat import markets:

– Japan: **high quality** with the frozen product mainly going for processing and the chilled product (increasingly from the USA) used for fresh consumption. Japanese pigmeat production declines slightly each year, consumption per capita is stable but this is a massive high quality market with only slow structural change
– Russia: pigmeat per capita consumption has declined from 24 kg in 1989 to 13 kg in 1999. However collapse in production systems has created a major import demand for **cheap** pigmeat both in unprocessed and processed form.

POULTRYMEAT: There are a number of significant segmentations which are unlikely to change

– the USA and West European market has a preference for breast meat. Exports from both zones are increasingly in dark meat cuts which allow co-product pricing (low export prices for the dark meat cuts)
– the other major exporter Brazil, with the lowest production costs in the world, exports whole bird to the Middle East (and other South American countries) dark meat cuts (often de boned) to Japan and increasing supplies of cooked breast meat to the ready meal producers of West Europe
– the "quality" import market Japan is largely for **de boned** leg meat: this favours the low labour cost exporters such as China (via joint ventures) and Brazil
– Russia imports low quality / lowest price leg meat and MDM as cheap protein for the urban masses
– China imports very cheap cuts such as feet, wings etc on both price and culinary tradition grounds
– in both the USA and West Europe, there has been a steady push of poultry (chicken and turkey) into further processed form (breaded, marinated, cooked, sausages, pâtes etc).This has widened positioning. In Germany nearly 25% of poultry is now consumed in further processed form and the % increases every year
– carcass colour (yellow or white) is also important, particularly in South America. Argentinians and Uruguay prefer yellow, and Colombia, Peru, Venezuela and Chile prefer a lighter yellow. Brazil's preference is mainly white but there are regional nuances. Exports have to be adjusted e.g yellow for Argentina and white for the Middle East
– finally turkey production / consumption as opposed to chicken is only important in a few countries: USA, Germany, France, UK and Italy… and Israel.

CONVENIENCE

The developed world consumer likes the reassurance and taste which is given by meat but increasingly:

- wants this in convenience form
- does not want to be reminded via anatomic cuts of the reality of the abattoir system.

For convenience, processed meat in charcuterie form is convenient but there is a steady growth in demand for what can be termed "ready meals". These can be either protein + 2 vegetable (complete) or a convenience protein in a sauce (meal component). In terms of process they can be frozen, chilled, heat sterilised or dehydrated. (There is a small freeze dried component for items such as omelettes). Beef and poultry (mainly chicken) are the two main meats, with pork underrepresented in this area and sheepmeat with virtually no presence at all. The main protein competitor is seafood although there is a vegetarian (e.g via pasta, pulses, aubergine etc) segment. Recipes are standard to a country or increasingly ethnic / exotic (Italian, Mexican, Indian, Chinese, Indonesian etc). The meat content is an average 15-20% of the total product weight but can be as low as 5%.

The advantage for the producer is high margin with the relatively low meat content and presence of cheap carbohydrates and vegetables. The industry is highly concentrated in West Europe with major food produces such as UNILEVER, NESTLE, DANONE etc. It is also concentrated in the USA with NESTLE / STOUFFER, HEINZ, CAMPBELLS (SWANSON), CONAGRA etc.

Here however a number of small companies have emerged with significant initiatives in the home meal replacement area. These have been acquisition candidates for the large red meat packers and poultry groups. In the USA, it should also be recalled that take out meals from restaurants and in-house preparation for the deli units of supermarkets are also significant contenders for the home meal replacement market.

A short reference should also be made in the context of this paper on "Meat in the context of Functional Foods".

MEAT AS FUNCTIONAL FOODS?

The nutritional benefits of meat have been recently emphasised throughout the developed world: protein (amino-acid balance) and elements such as iron and zinc. In the unprocessed meat area, the meat (carcass) quality improvement has been achieved by a combination of genetic selection and improved feed regimes. Little radical change can be expected here if we exclude genetic manipulation. There are however many schemes particularly in West Europe in all the meat producing species to develop further an improved quality of meat by changes in rearing conditions, some of which are combined with animal welfare considerations. (GIRA has long taken the view that the drive over the last 25 years to lower costs in animal / meat production will have to be reversed both to ensure higher hygiene and eating qualities and to provide a minimum of decency in animal welfare: we have the right to eat animals but not to tolerate cruelty during rearing, transport or slaughtering).

In the processed meat area (the wide variety of cooked and cured charcuterie products) the potential for increasing the nutritional functionality of products is theoretically very wide: the addition of a wide variety of plant derived ingredients to achieve higher protection against cancer, to lower cholesterol, to improve the intestinal flora etc. The dairy industry has shown a lot of initiative in this area, apart from the major area of fat reduction (the wide range of "light" products).

We would counsel prudence:

- there has already been a steady reduction in fat context in hams, sausages and pâte type products
- salt incorporation has been steadily reduced to levels which are no longer of major concern for those suffering from hypertension
- processed meat products which are mainly pigmeat based are firmly anchored in eating habits in the developed world and have strong culinary, pleasure and "filler" functions. It is not evident that they are logical vehicles for carrying a wide variety of medically associated messages
- regulatory bodies in all the developed countries are prudent in allowing health benefit claims
- previous attempts in West Europe to develop and market "healthier" / dietetic processed meat products have not met with the anticipated market response.

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