



## Statement

10 November 2015  
SST/MT

### Meat & Cancer

#### - measures to reduce any risk

#### *Background*

In a new report from WHO, a group of researchers conclude that evidence appears for a relation between consumption of processed meat and the occurrence of colorectal cancer. Furthermore, it is stated that there is a positive association between consumption of red meat and the occurrence of colorectal cancer – a relation that is not as strong as for processed meat. The report further indicates that consumption of processed and red meat is positively associated with cancer in the stomach and pancreas and prostate, respectively.

Causal relations between consumption of fresh and processed meat and the risk of development of cancer are not established, but several possible mechanisms are indicated, which among others involve haem iron and formation of cooking and smoke mutagens as well as N-nitroso-compounds.

#### *Meat and diet*

Meat plays an important part in a healthy and varied diet as the meat contributes positively with e.g. proteins, iron, zinc and vitamin B. To ensure that meat will continue to play a significant part in the diet, work is still in progress to limit any health and safety risks linked to consumption of meat.

#### *Development activities*

Through many years, DMRI has worked with quality and safety of fresh as well as processed meat. The work has included factors as cooking, addition of salt and nitrite and application of dietary fibres – all factors that positively or negatively are linked to the possible carcinogenic effect of fresh and processed meat.

#### *Cooking*

DMRI has documented that the formation of cooking mutagens is reduced by gentle cooking during which the meat is not over cooked or burned. A piece of good advice – no matter if you cook in a frying-pan or at a grill – is to turn the steak or chop every second minute and to remove the meat when the core temperature has reached 65°C. In this way, you obtain juicy meat, and the formation of cooking mutagens is limited. The undesirable compounds could not be determined in pork or beef

grilled at indirect heat (coal or gas grill) making this cooking method recommendable as well.

Marinating the meat before cooking can also contribute to reduce the formation of cooking mutagens. Addition of herbs and berries with high antioxidativ activity to marinades has been tested, and the results show that it is possible to reduce the formation of cooking mutagens in marinated chops – even if the meat is grilled thoroughly. Oregano appears to be an effective inhibitor for the unwanted compounds.

#### *Dietary fibres*

A large consumption of fibres has proven to protect persons that eat red meat from colon cancer. This knowledge can be exploited in the composition of food as well as the individual meal in which not only meat but also ingredients with a high content of fibres should be found on the plate. Furthermore, DMRI has developed a fibre sausage and fried meatballs with fibres – both with a low fat content. The combination of protein from meat and the vegetable fibres increases the feeling of satiety, just as the addition of fibres reduces the risk of developing cancer.

#### *Salt reduction*

For a long time, reduction of salt and nitrite content in meat products has been in focus. DMRI has worked on the possibilities of reducing the addition of salt and nitrite, without compromising safety, yield, texture and the taste of the meat product. The results of this work have been used to produce meat products that have a lower salt and nitrite content than previous products.

#### *Summary*

Meat will continue to form an important part in a healthy diet. The meat industry has several possibilities of reducing a possible carcinogenic risk linked to the meat, just as the consumer – through cooking – can make an effort to avoid formation of cooking mutagens. Furthermore, meat should be regarded as a part of a meal in which consumption of dietary fibres reduces a potential risk of cancer.