

Lecture 7

FACTORS AFFECTING BEEF QUALITY

Management

Animals kept under an intensive management system perform better than those left to roam about in beef quality as the energy used in roaming about to feed is conserved in the intensive system.

Age

Physiological age of the animal has a large impact on the meat quality of cow. Meat from younger animals is more tender than the meat from older animals. Meat from immature animals holds water between the muscles hence beef obtained from fully matured cattle is of higher quality compared to those slaughtered earlier than its maturity age. Bone and cartilage characteristics are used to determine the maturity of a carcass. Cartilage of young animal is much more than older animals which are converted to bone as the animal ages. The texture of meat from more mature cows is much coarser than the texture of meat from younger cows. However, increased darkening of meat is caused by ageing due to increased level of myoglobin.

Slaughtering Methods/Techniques

The slaughtering method practiced in tropical countries causes an incomplete bleeding and makes the remaining blood to splash on the meat. When blood is found on the meat, this shows that the meat is not a quality one as meat is predisposed to microbial contamination. This method also affects hide and skin of the animal.

Finishing

This refers to the amount, character and distribution of external, internal and intramuscular fat. For example, small amount of fat beneath the skin during dry cooking prevents beef from drying out. Therefore, too much fat on a carcass decreases the retail cut yield

Nutrition

If cow are not fed with quality feed, this affect their beef quality. Feeds are converted into meat. The quality and quantity of feed affect beef quality. High variability in feed supplies affects the weight gain of grazing animals causing poor quality meat. Lack of improvements in crop yields and the competition between human and animals as well as brewing industries for the available grains makes nutritional requirement at reasonable cost more difficult to achieve since a viable livestock industry is interdependent on agricultural products.

Disease factor

The beef industry is faced with insidious economic diseases such as mastitis, trypanosomiasis causing anaemia, emaciation, intermittent fever and poor condition, streptothricosis, endo- and ectoparasites

and some reproductive diseases leading to breeding inefficiency and infertility. A light helminth infection deprives calves of their vigour while a heavy burden results in marked reduction of weight gain, decreased feed efficiency and consequently poor condition or even death

Marketing

The marketing system in this part of the world is no organized. There is no market information to show trend of supply, demand, current prices and even customer's suggestion or complaints in beef bought. Nigerian consumers have not been known to request for a particular type of meat to change the given marketable products. There is also no standard for weighing or organized auction of live cattle or weighing of meat.

Firmness

This refers to firmness of the flank area or lean cut surface. Carcass with more fat is firmer than that of muscle. A small amount of fat is desirable for optimum meat quality. A small amount of fat beneath the skin during dry cooking prevents the meat from drying out. Although, firmness make no contribution to meat palatability, firm retail cut are more attractive because they hold their shape better. Firmness is also an important quality in cuts which will undergo extensive processing.

Sex

Small differences in palatability have been observed between the sexes such that beef from bulls can be more variable and this is often associated with the higher variability in ultimate pH. Quality can also be due to heifers/cows having lower eating quality than bulls.

Transportation

It is during transit that most death and tissue bruising occurs, muscle tissue shrinkage also occurs which causes reduction of weight and this affects meat quality.

Heredity

Tenderness in beef may be up to 60% heritable. Livestock producer can make improvement to quality by careful selection of breed and strain.