



Flavours of lamb

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What does meat taste like? It's that indescribable flavour you have to experience for yourself. Scientists call this the "umami": a full savoury taste that cannot be described as either sweet, salty, sour or bitter.

This flavour develops through cooking. The amount of fat in the meat, as well as a process called the Maillard reaction, affects how the meat will taste. Marinating and brining can also add flavour to meat. However, the inherent fla-

vour of animal products arises from animal feed.

Role of animal feed

The unique flavour arising from a specific feed is especially applicable to South African lamb and mutton. It used to be said that South African sheep meat has distinct, of-

ten herbal or even medicinal flavours and aromas. More recently, studies have confirmed detectable sensory differences in sheep meat produced in different regions in southern Africa.

Lamb and mutton from certain grazing regions such as the Karoo or the Free State have been associated with unique flavours. This is often sought after by consumers who prefer a specific taste, and are prepared to pay a premium for it. Most South African sheep are reared on natural pastures and open fields, and are therefore considered to be environmentally friendly. The aromatic flavour of local lamb and mutton therefore disproves the traditional hypothesis that high-energy, grain-based diets pro-

The Maillard reaction

The Maillard reaction occurs when denatured proteins in meat combine with the sugars present in the muscle. This combination changes the colour of meat from red to brown during cooking, but also creates the typical meaty flavour loved by South Africans. The connection between this browning reaction during cooking and the flavour of meat was observed as far back as the 1940s. Since then - to illustrate the complexity of meat flavour - more than 600 components affecting the flavour of meat have been identified. Various other factors, in addition to cooking, affect the unique flavours and intensity we experience in our meaty meals.

As meat is cooked, the outside reaches a higher temperature than the inside, triggering the Maillard reaction and creating the strongest flavours on the surface. Flavours can further be added to the meat through brining, marinating, salts and spices. However, inherent flavour in meat is largely influenced by the animal feed used, which gives South African lamb and mutton a unique edge.



duce more intense flavours in red meats than do forage or grass-based diets. But what is the reason?

Sheep are produced in almost every corner of South Africa, except in the far north-east. Special breeds have also been specifically bred to withstand harsh temperatures, arid soils and sparse vegetation in areas with limited rainfall. This may have led to our unique sensory eating experience of local lamb and mutton.

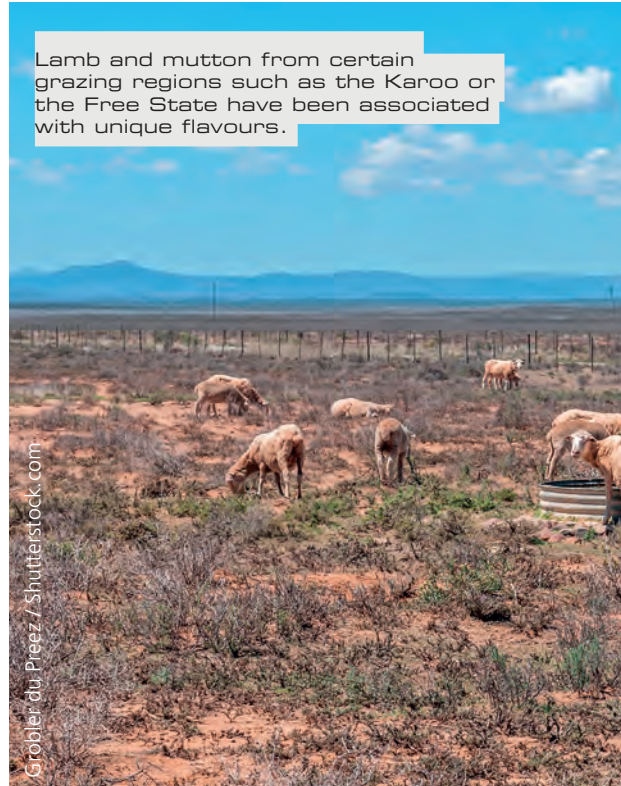
Confirmation from science

To investigate the feasibility of a certification scheme for

lamb and mutton produced in specific regions, scientific research was commissioned in 2007. A study, led by Prof Hettie Schönfeldt of the University of Pretoria in collaboration with the Sensory Analysis Unit of the Agricultural Research Council (ARC), evaluated the aroma, texture and flavour attributes of sheep meat from different regions in South Africa to determine whether there were statistically significant differences between South African and Namibian sheep meat. The unique attributes identified by this study led to the establishment of the Karoo Development Foundation

early in 2009 and a certification scheme was put in place whereby certain lamb and mutton products could be traded using the Karoo Meat of Origin certification logo.

During the study, mutton carcasses from two major breeds of sheep (Dorper and Merino) were procured from eight farms in various regions, including the Free State, Kalahari, Northern Cape (specifically De Aar and Carnarvon) and Namibia. The study found that mutton from the Karoo region (Northern Cape and the Kalahari) had definite flavour-related characteristics which could be attributed to



the plants growing in these regions.

Lamb and sheep from this Karoo region graze on *bossies* (indigenous plants) found exclusively in this part of the world. These hardy *bossies* can endure heat, cold, wind and hail and provide feed for animals year round, as grass can only be found in rainy seasons. There are various species of Karoo *bossies*, each of which is specialised to survive the harsh conditions of the Karoo in different ways. These *bossies* are also most likely to be responsible for the distinctive flavour of the meat from animals that grazed on them.

The Free State is a summer rainfall region, which gets very cold during the winter months, especially towards the eastern mountainous regions. Sheep are farmed in the arid western and southern areas. The spacious, sun-filled grasslands contribute to mild, grass-like flavours being associated with meat from animals produced in this region.

The flavour is in the fat

Fat, an energy source stored in animal muscles, also contributes to the flavour of meat. Although water is the most prevalent component of meat, most of the aroma molecules carrying flavour are

hydrophobic, ie repelled by water. These molecules dissolve in fat.

Meat's fat content varies from animal to animal, and within each animal, it varies from cut to cut. Muscles that are used most by the animal contain the least amounts of fat. The more tender cuts which contain muscles that are less used by the animal will contain more fat and as a result, more intense flavours.

Age also plays an important role in the development of flavour. The older the animal, the more time it has had to build up fat, and the more flavour is deposited within the meat.



There's a meat for every man

Some people love their meat to have aromatic associations with herbs such as rosemary or sage, or prefer a scent of freshly cut wood with or without musty-earthly undertones. But naturally produced South African sheep meat has a wide variety of unique flavours not found elsewhere which will please every consumer!



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