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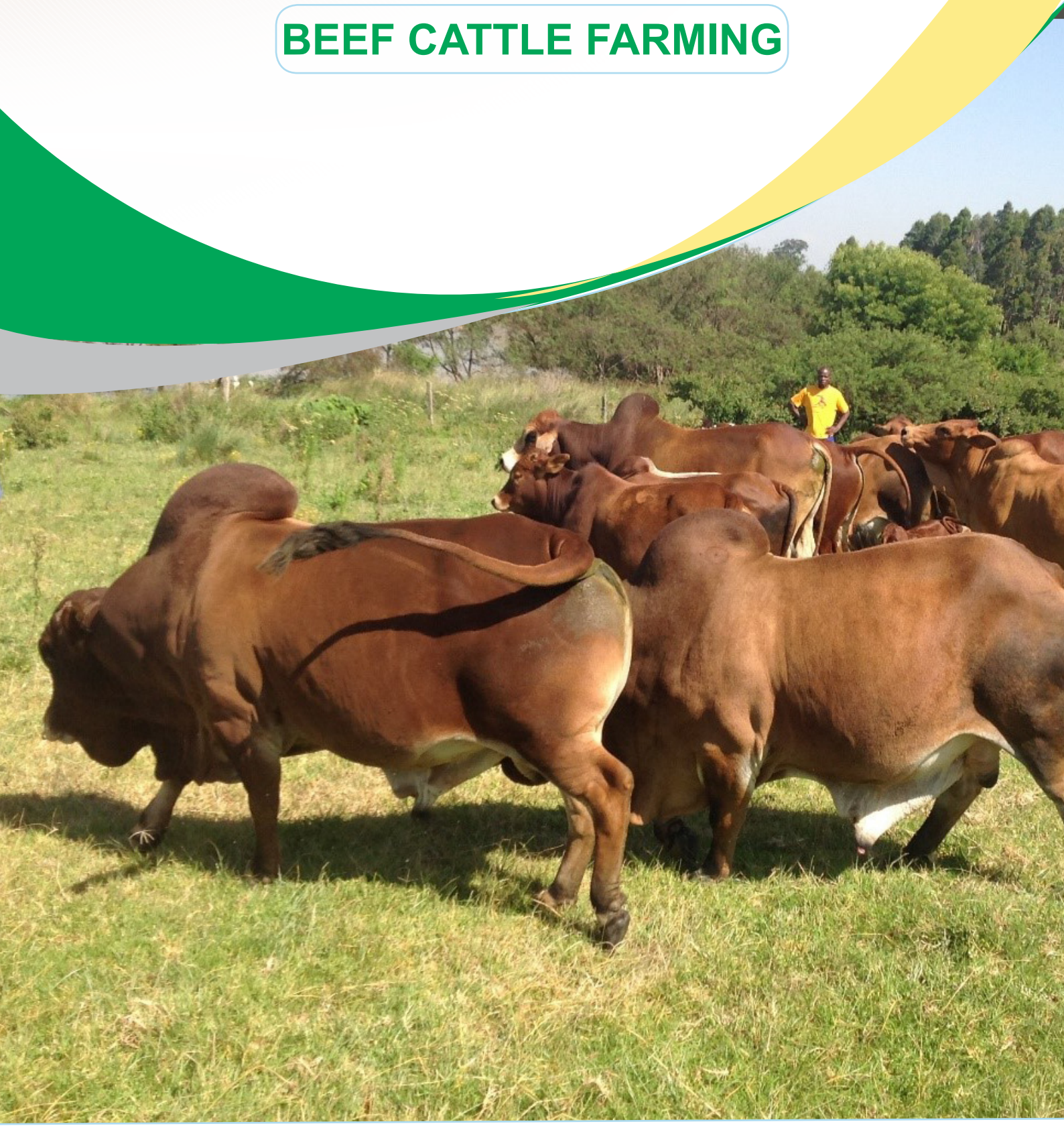
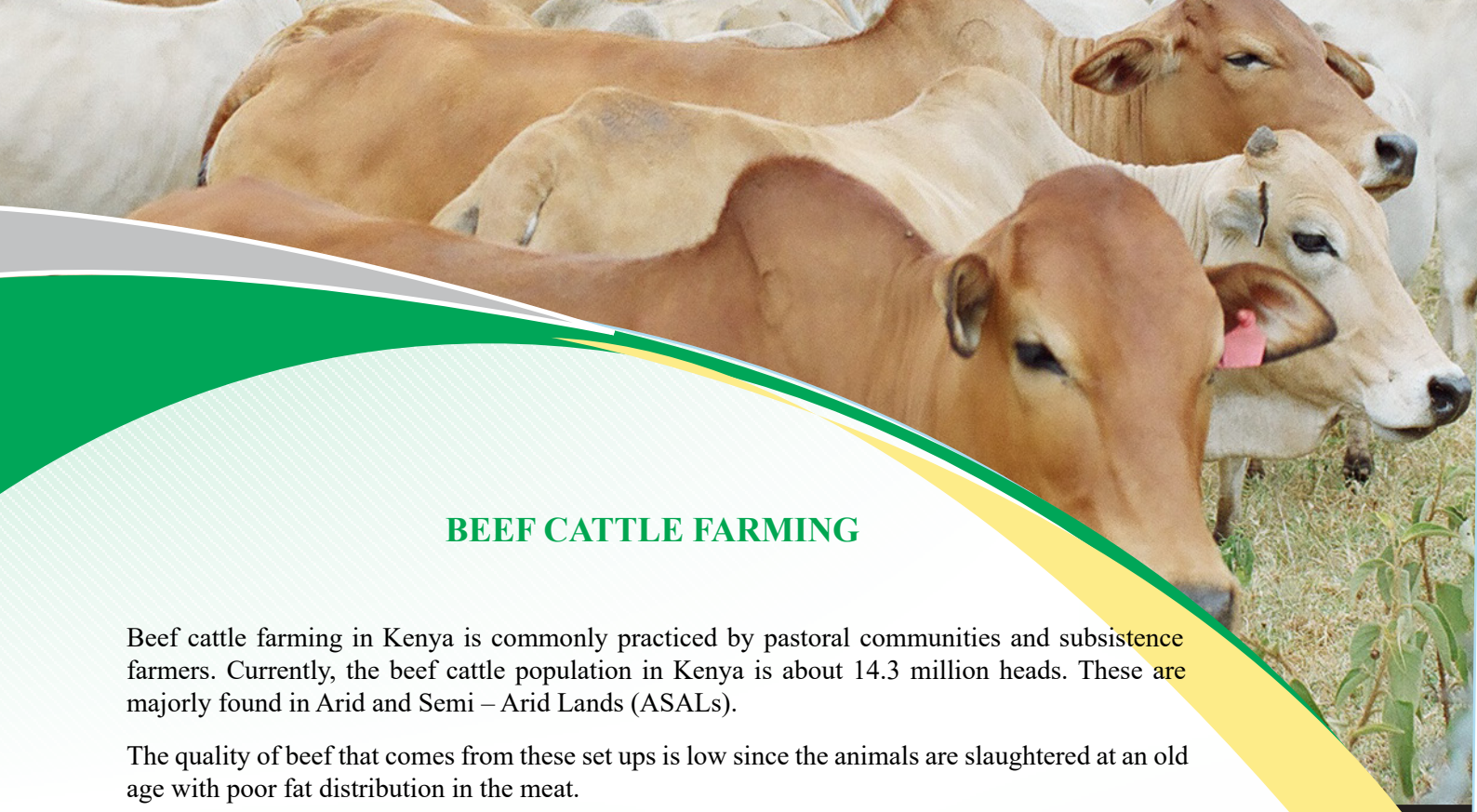
BEEF CATTLE FARMING





BEEF CATTLE FARMING

Beef cattle farming in Kenya is commonly practiced by pastoral communities and subsistence farmers. Currently, the beef cattle population in Kenya is about 14.3 million heads. These are majorly found in Arid and Semi – Arid Lands (ASALs).

The quality of beef that comes from these set ups is low since the animals are slaughtered at an old age with poor fat distribution in the meat.

Common Beef Breeds

Sahiwal

Average body size: Large (average live-weight 400-600 kg).

Description: Body colour is reddish brown with darker areas

- Kept as a dual-purpose breed for milk and meat.
- Has good feed conversion efficiency with a faster growth rate.
- Many crosses with local breeds exist. Sahiwal bulls are used for local herd improvement

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East African Boran

- They are commonly known as the local Boran. They are hardy animals with ability to graze efficiently in ASAL areas.
- The Kenyan Boran coat color is usually white with spots, but brown and red coat colors have also been found.
- They are a medium-framed animal (cows 380kg to 400kg; bulls 680kg to 750kg live-weight).
- Other improved breeds of the Boran exist.
- They have high feed conversion efficiency, fast growth rates, high maturity weights (450-900 kgs), good body finish, good breed for marginal areas.
- Hardy and disease resistant animal.
- They have a milk production potential is low (5 liters/day), Late maturing (3 years).

Improved Boran

- Mostly are white in color and with a tall large body frame.
- They are known for their **docility, heat tolerance** and ability to withstand droughts due to their **hardiness**.
- These are a medium-framed animal (cows 380kg to 400kg; bulls 680kg to 750kg live-weight).
- They possess a level of resistance to **parasite**s and are also known for good fertility.
- It can endure **scarcity of water** and can live on low.

Orma Boran

Charolais

- Has a large body frame.
  Description: The coat ranges from white to cream-colored; the nose is uniformly pink. It is among the heaviest of cattle breeds: bulls weigh from 1,000 to 1,650 kg and cows from 700 to 1,200 kg.
- Very **good feed conversion efficiency** but **susceptible** to many diseases
- Fast growth rate.

Simmental Breed

Average body size: large body frame. Their weight can vary from 700-900kgs in cows and bulls 1300kgs. (average live-weight 250-300 kg).

Description:

- Their color varies from gold to red with white, and may be evenly distributed or clearly defined in patches on a white background. The head and legs are often white.
- Lighter colors are referred to as Fleckvieh, which has emerged to be a breed on its own.
- Very **good feed conversion efficiency** but **susceptible** to many diseases
- Fast growth rate.

SITE SELECTION

- Land availability and feed resources are key to location of a beef cattle enterprise.
- This can be natural forage, supplementation or Total Mixed Ratios feed formulations for feedlots.
- Direction of prevailing winds in relation to neighbours.
- Adequate source of water.
- Access to land for manure application.
- Land should be free from flooding, swamping or surface runoff.

HOUSING

Air quality:

- Animal shelters should be open, providing natural ventilation for good air circulation.
- Tight buildings result in a build-up of respiration gases, and animal odours, which can irritate the animal's lungs and cause pneumonia.
- Dangerous ammonia levels1 can also build up and lead to suffocation death of animals.

Drafts:

- Cattle can stand cold temperatures, but you should protect them from drafts. Constructing panels in front of an open building can reduce drafts.
- Consider drafts at animal height, not person height.
- When animals are allowed to run loose in a pen instead of being hitched, they will search for the most comfortable spots as needed.

Fresh water:

- Cattle need water to survive. Under cold conditions, provide fresh water often Animals will drink more when water is 10°C.
- Ease of cleaning and disposal of manure in an environmentally friendly way should be considered.

SOURCING

- Buy cattle from reputable breeders.
- Look into the breeder's animal records
- Always consider buying and raising local breeds first. Because local breeds generally perform well compared to the exotic breeds.

Nutrition (Feeds and feeding)

Protein

- Proteins are composed of amino acids, which all contain Nitrogen (N). Nitrogen is not present in carbohydrates or fat.
- Proteins are one of the most important parts of a feed and form an essential nutrient. It is continuously needed by animals for growth and development.
- Proteins are also required for body maintenance, meat formation and muscle deposit.

Sources of proteins:

Lucerne

Calliandra

Mulbery

Sesbania

Carbohydrates/Energy

- Carbohydrates are major source of energy for maintenance, growth, production and reproduction.

Sources:

Lush Napier

Bailed Hay

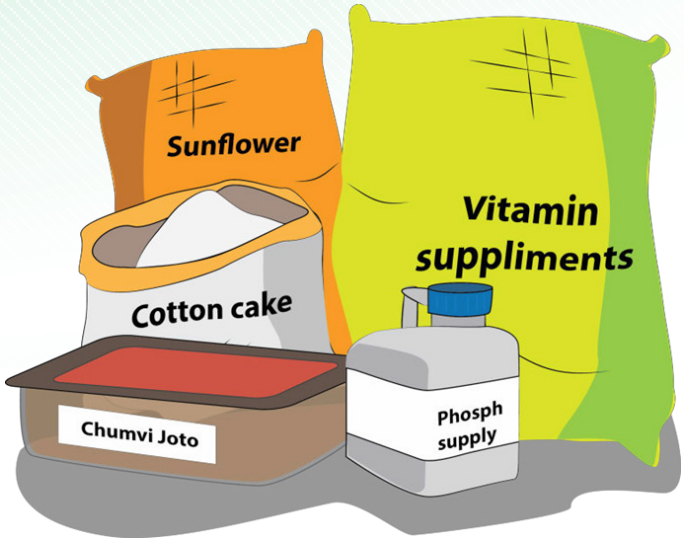
Total mixed ratios (TMR)

- TMR, is a feed in which all feed components (staple feed, concentrated feed and mineral feed) are mixed and fed to the animals as a ration.
- Such include – Grains (maize), Protein source (sun flower or cotton seed cake), minerals and vitamins among other ingredients.

Fats

- Fats are high in energy. Fat provides 2.5 times more energy than the same quantity of carbohydrates.
- Fodder are not good sources of fats as they are generally low in fat content. However, oil crops such as sunflower, cottonseed and soya bean have a relative high fat content.
- Some fat should be present in the ration as they form a source of some vitamins.
- Excess fat is deposited in various body tissues and metabolized to provide energy during starvation. Animal can be also be a rich source sources of fat.

Mineral salts



- Minerals are essential for all animals. In the beef industry, important minerals include phosphorus, potassium, sulphur, magnesium, sodium, chloride, copper, zinc, iodine, selenium, cobalt and iron.
- Some like calcium and phosphorus are the main components of the bones.
- Mineral deficiencies can decrease dry matter intake, impair reproductive performance, compromise immunity and therefore disease resistance and result in poor feed conversion, causing lowered daily live weight gains, sometimes it can lead to deficiency diseases.

Vitamins

- Unlike minerals, Vitamins are necessary for animals in very small quantities.
- However, they are essential for different chemical reactions which take place in the body, which are in particular related to the digestion.
- Vitamins do not play a big role in the feeding of beef animals. Most of them are synthesized by the bacteria in the rumen.
- When animals are fed green forage, usually no supplementation is required.

Water

- All feeds contain a certain percentage of water. When feed is dried what remains is called the dry matter (DM)
- Animals should always have access to plenty of water to survive.
- When it is impossible to give cattle permanent access to water, the animals should be watered for at least, three times a day where they should be allowed to drink as much as they like.

Daily water requirements for non-lactating beef animal will range from 6-12% of their body weights. Lactating cows may consume up to 18% of their body weights. Note the water must be clean and palatable.

Feed storage

Crop by-product storage

Hay storage

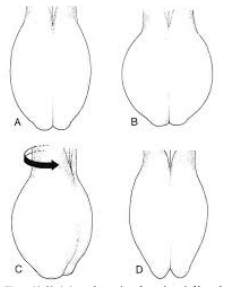
- Proper storage of feed minimizes economical and nutrient losses through spoilage.
- Feed stores should be constructed to prolong the shelf life of the feed for as long as possible to provide feed security during drought
- Feed can be conserved as hay or using silo.
- Feed should not be stored in bad conditions that can make it reduce in nutritional value.

BREEDING AND SELECTION

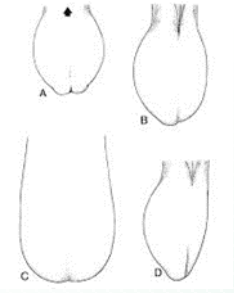
How to select Breeding animals

- Individuals selected for breeding must have desirable characteristics which the farmer wants to be passed on to offspring.
- Selection leads to hybrid vigour in order to improve the animal breeds in the following generations.
- Select good physical traits and breed conformity as per the breeding target.

Preparing bull for breeding



Correct scrotal conformation



Poor scrotal conformation

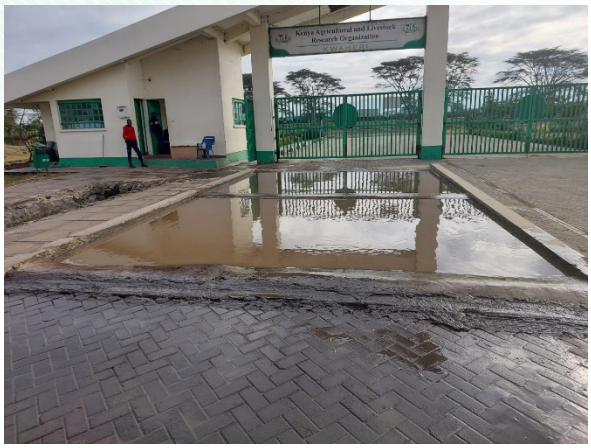
- Breeding bull should have good physical traits and good scrotal conformation. Undertake a genital exam before breeding.
- Yearling bulls need a diet containing 13.5 - 14% crude protein with no more than 60% grain.
- The inclusion of forage in the diet should increase as the young bull matures.
- Mature bulls should get about 12% crude protein diet.
- Often this protein requirement can be met by offering moderate to good quality forage.

- Mineral supplementation is critical, as an adequate supply of minerals (particularly vitamins A & E and zinc) are important to build the bull's physical fitness and to prime the reproductive system for the breeding season ahead.
- Parasite control should be carried out to ensure bulls can maintain peak physical performance.

Preparing cows for breeding

- Vaccinate the cow herd against reproductive diseases as well as other diseases at the right time.
- Ensure that the cows' diets of minerals, and vitamins A and E, are optimal.
- Control internal parasites by de-worming to reduce stress levels.

BIOSECURITY



- Establish water baths and foot baths at points of entry.
- Monitor and manage visitor traffic.
- Disinfect all possible sources of infection on the farm.
- Clean contaminated vehicles and equipment.
- Know health history of new herds where new animals are purchased.
- Undertake clinical examination and observation of new herds.
- Quarantine and isolate new and sick animals.
- Have a control program for vermin that could spread disease (rodents, insects, external parasites, etc.).
- Proper collection and disposal of manure.
- Maintain good personal hygiene.
- Be observant monitor signs and symptoms of disease.

DISEASE AND CONTROL

- Early detection of illness in animals is important to successful treatment.
- The longer an animal is sick the more difficult it will be to cure.

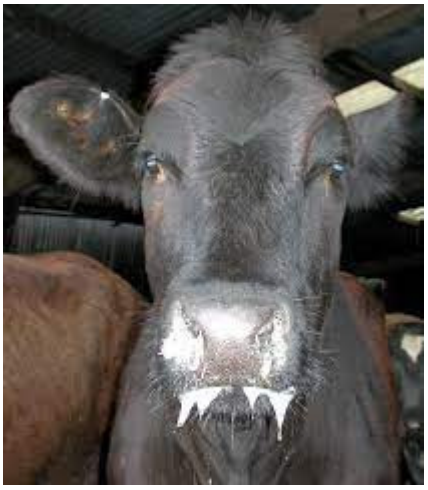
Identifying healthy cattle

- Breathing should be smooth and regular at rest.
- Dung of normal consistency

- Normal activity and mentation
- Bright and alert
- Moist nose with no discharge.

Signs of disease:

- Stops eating and possibly also drinking (loss of appetite)
- Dullness and lagging behind the others
- Fever and sometimes restlessness.
- Difficulty in breathing.
- Coat becomes rough and loses its shine.



Drooling animal with signs of FMD.

A cow showing signs of Lumpy skin disease

Common cattle diseases

Brucellosis

- It causes early abortions in animals.
- Give mass vaccination of all eligible female calves between ages 6-8 months in the areas where the incidence of the disease is high.

Foot and mouth disease

- Is an infectious (viral) disease that affects animals,
- Symptoms include fever, blisters inside the mouth and on the feet that may rupture and cause lameness, excessive salivation (smacking jaw movements in cattle), neo-natal mortality.
- Highly contagious
- Separate sick animals and implement strict quarantine

Anthrax

- A highly infectious and fatal disease of cattle, is caused by a relatively large spore-forming rectangular shaped bacterium called Bacillus anthracis.
- The disease infects humans
- Prevented and controlled by vaccination

Symptoms:

- Sudden death (often within 2 or 3 hours of being apparently normal) is by far the most common sign;
- Very occasionally some animals may show trembling, a high temperature
- Difficulty breathing, collapse and convulsions before death. This usually occurs over a period of 24 hours;
- After death blood, may not clot, resulting in a small amount of bloody discharge from the nose, mouth and other openings.

Treatment and control

- Due to the acute nature of the disease resulting in sudden death, treatment is usually not possible in animals even though Anthrax bacilli are clines.
- Treatment is of use in cases showing sub-acute form of the disease.
- In most cases, early treatment can cure anthrax. The cutaneous (skin) form of anthrax can be treated with common antibiotics.

Black quarter (back leg)

- It is an acute infectious and highly fatal, bacterial disease of cattle.
- Controlled and prevented by vaccination

Symptoms

- Loss of appetite, Depression and dullness
- Rapid pulse and heart rates
- Difficult breathing
- Lameness in affected leg

Treatment:

- Early treatment can be possible to complete cure of the animal.
- Consult with veterinarian immediately.

East coast fever

- East coast fever is a lethal disease of cattle
- Characterized by high fever, swelling of the lymph nodes, and high mortality.
- Transmitted by the tick vector *Rhipicephalus appendiculatus*
- Vaccine available for lifetime protection

PROCESSING

We can get direct products from beef such as;

- Beef meat: eg fillet, stewing steak, silverside.
- Mechanically recovered meat (MRM)
- Burgers/sausages
- Skin, bones, ligaments and tendons

- Beef suet.
- Dairy products
- Keratin (from hair, horns and hooves)
- Oleoic Acid (from kidneys).

Processed by- products – Value addition

- Many medical products are made from animal by-products. Some products may contain stearic acid that is found in fatty acids, such as in beef cattle.
- Ointments for burns and first aid creams may contain animal by-products
- Dish soap may contain beef fat that helps make your hands soft.
- Candles may have beef by-products in them to give them more strength, to help them last longer, and make them more opulent.
- Sports equipment is often made from animal by-products. Many professional teams use cowhide footballs.
- Leather from cattle – such as shoes, leather jackets, belts, gloves and other clothes.

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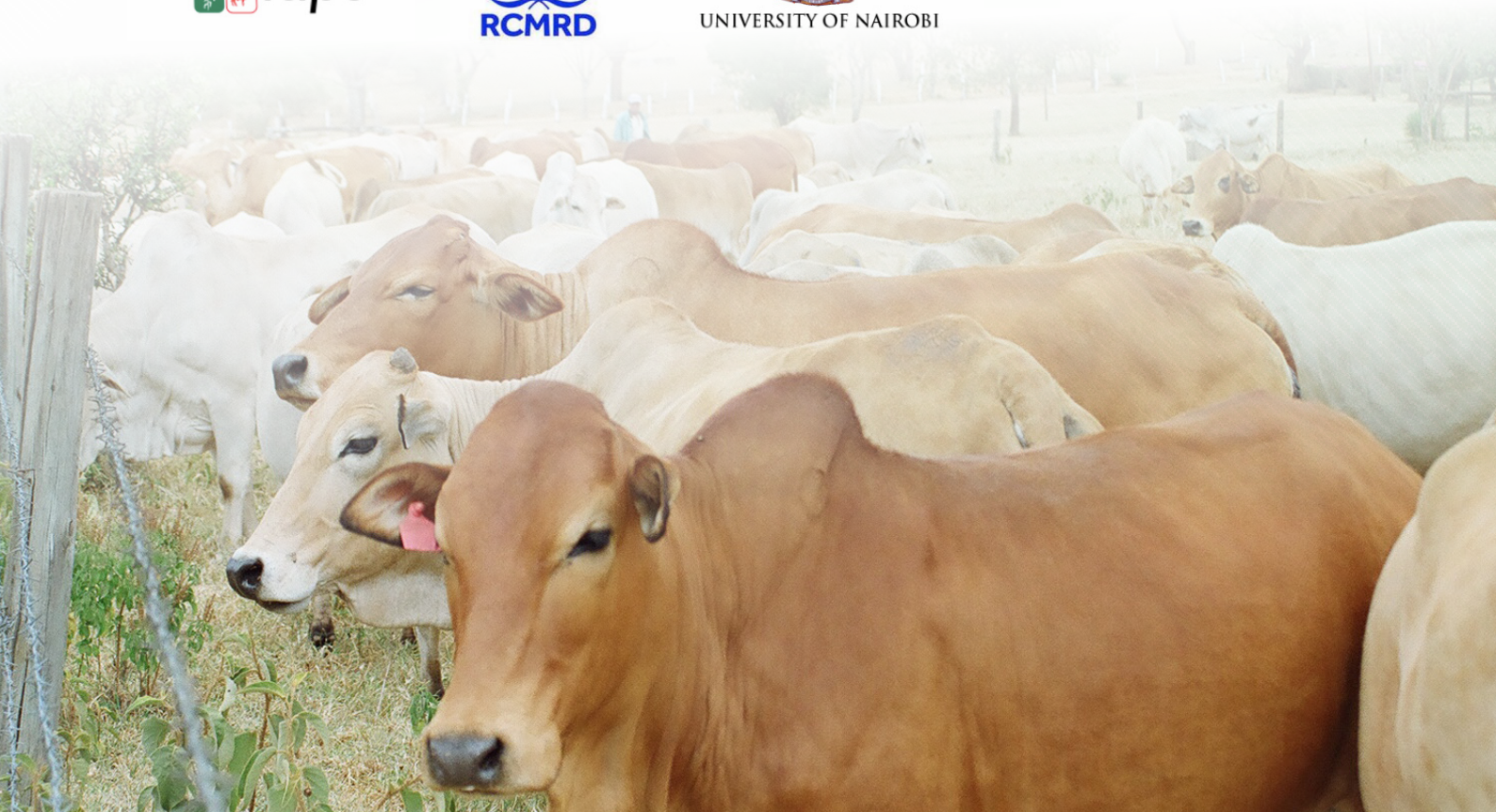

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