

6 Essentials of Maximum Milk Production

1. Lots of Good Quality Feed and Water

When a cow or calf takes in energy and protein in their feed, their body sends it to where it is needed most first. The first priority is for the animal's body growth and maintenance of bones and muscles. Secondly, any energy that is left over can be put into milk production, and lastly reproduction. Therefore, if you want your cow to give lots of milk and get pregnant fast, then you need to give her lots of good quality feed. Also, milk is composed of 85% water, so your cow needs lots of water, especially when it is hot outside.

- At all hours of the day and night, cows and calves (and other animals on your farm, too) should have feed and water available to them. The feed manger must never be empty of forage. Hungry skinny cows will give low milk production and take longer to get back into calf. If all that is left in the manger is stalks from tall Napier grass or maize (cows don't like to eat them), remove them and give fresh leafy feed – something they want to eat.
- Dairy meal (purchased or home-made) and minerals are an absolute necessity for lactating cows as well as dry cows that are being steamed up. How much they should be given depends on their needs (higher in growing heifers, non-pregnant lactating cows) and the forage quality being fed (high quality forage allows you to feed less dairy meal). Forage quality depends on the plants and how you store them.

Many nutritious plants that are also high in protein can be cheaply grown on your own farm and can reduce daily dairy meal requirements (for example: Desmodium, sweet potato vines, calliandra, lucerne, etc. – Chapter 1). Short Napier grass (1 metre tall) has at least twice as much protein as tall Napier grass. Weeds and banana leaves and stems have very poor nutrition for your cow and some can be harmful to their health. Read about fodder shrub (chapter 21) for more information.

*Store high quality forages (such as grass or maize silage, dried grass or maize) during the rainy season or early dry season to have nutritious feed available during the late dry season. It is important to harvest forage crops while they are still green and then dry them (rather than letting them dry standing in the field) to preserve the energy and protein inside the plant. See chapter 15 on silage.

2. Dry Period & Steam Up - See Chapter 1

Cows are working really hard to produce milk, they put so much energy into producing milk that they need a break before they calve and start their next lactation. This also gives the udder a rest, a chance to cure mastitis and prepare the udder for more milk production in the next lactation. Cows need a 45-60 day rest period at the end of their lactation, prior to calving. During the end of the dry period, it is important to steam up your cows by slowly increasing the amount of dairy meal they receive during the 3-4 weeks before calving. Steaming up helps their stomachs get used to getting dairy meal again. Remember:

- Provide dry cow treatment in the udder to prevent and treat mastitis
- Provide dry cow mineral (Ca:P 1:1, and selenium) especially during steaming up
- Provide clean, dry bedding because dry cows can still get mastitis

3. Disease Prevention

When a cow has an infection and poor appetite, she must put energy into fighting off that infection. Until she recovers from the illness, she will produce less milk, and will possibly give less milk for the rest of her lactation. It is best to treat sick cows quickly, and prevent your cow from getting sick in the first place.

Here are some simple ways to help you keep your cow healthy and prevent disease

- Provide a zero grazing unit to reduce exposure to tick-borne diseases. See Chapter 7.
- Provide regular deworming for your cattle and spraying for ticks. If your cattle are being zero-grazed, then you don't need to deworm your cows or spray for ticks as often. When deworming your cattle, ensure that they are getting the proper amount. Weigh your cattle with a weight tape (Chapter 19) and dose accordingly. See Chapters 7 and 10.

- Adequate nutrition and mineral supplementation are important for a cow's immune system to fight off disease. See Chapter 1 and 23.
- Cows need to breathe fresh air while laying in stalls so good air flow is important in stall design. However, blowing dust can cause tearing eyes and coughing in cattle so in the dry season some water should be sprayed on the dust around the head of cows.
- AI breeding is important to prevent the transmission of diseases from bulls to cows. See Chapter 11.

Mastitis is a disease of the udder caused by germs that get into the udder through the teat. When the udder is infected with mastitis, the milk will be rejected by the dairy and during treatment the milk cannot be sold or drunk by humans. Mastitis also decreases the amount of milk she will be able to produce from the quarters both while infected and for the rest of the lactation. Therefore, it is much cheaper to prevent mastitis rather than to treat it. See Chapter 4.

- To prevent mastitis, you have to help the cow keep her udder dry and clean. You can do this by providing her a clean and dry well-designed stall that she wants to lay in. See Chapters 4 and 24.
- Good milking technique can help your cow's teats in good condition. Also, washing your hands and the udder before milking (and between cows) is important. After you are done, it is important to teat dip your cow's teats with a good antiseptic teat dip. See Chapter 4.
- California Mastitis Test (CMT) can help detect mastitis even when the milk looks normal. Ask your daktari or your dairy about this test when your milk is rejected. See Chapter 18.

4. Stall Design and Cow Comfort – See Chapters 5 and 24

Listen to your cows - if they are not lying in the stall, you are providing for them, they are trying to tell you that they do not like it and it is not comfortable for them. Cows produce more milk while they are lying down than when they are standing (they waste energy standing). Cows should be lying down for 10-14 hours a day: If they are not eating, drinking or being milked, they should be lying down. Important to have:

- Proper placement of boards, with adequate lunge space to stand, built for the size of your cows.
- Clean, soft, and dry bedding in big enough stalls, with non-slippery floors where they walk
- Grouping cows/calves of similar size to decrease competition at the feed bunk
- Shade and ventilation where cows spend the most time: in stalls AND at the feed bunk

5. Genetics and Breeding - See Chapter 11 and 12

Bull selection through AI can be used to select for easier calving deliveries and cows that have the potential to produce more milk. Good heat detection is also important to get your cows bred back 3-4 months after calving, so that they return to peak milk production sooner. Remember:

- Make sure a cow gets bred within 12-16 hours of when she is in standing heat.
- Heifers can be bred once they reach 60% of a mature cow's body weight – $400\text{kg} \times 60\% = 240\text{kg}$.

6. Calf Management – Your Milk Cows of the Future – See Chapter 2

Calves are an investment into your future for when they become cows. While they are not making any money for you as calves, if you raise them properly, they will reach a breeding size younger, deliver a calf earlier, and start making money for you with their milk sooner. A good start in life for a calf is necessary for their future earning potential. Remember:

- Provide adequate colostrum intake (4 liters within 6-12 hours) to fight sickness
- Provide adequate milk volume (4-6 liters/day) until weaning for body growth
- Provide calf pellets for first 3 months of life and then pencils until pregnant
- Make sure high quality forages, minerals, and water are available at all times