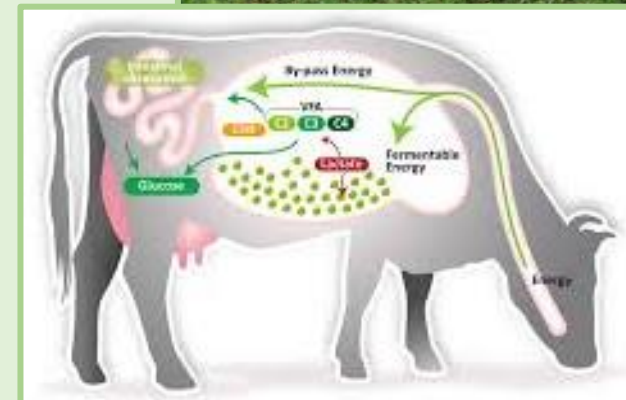


METABOLIC DISORDERS (Level 1)

Topic	Training & information Content
3.1	Estimating feeding value of fodder & feed on dairy farms
3.2	Sampling feeds & forages/analysis interpretation
3.3	Estimating Dry Matter intake for various breeds/age categories of dairy cattle in the tropics
3.4	Reviewing feed intake, rumen fill, Body Condition Scoring (BCS)
3.5	Life weight estimation of cows
3.6	Rumen fermentation
3.7	Mineral & vitamin requirement, guidelines
3.8	Manure scoring and evaluation
3.9	Guidelines for ration calculations for various breeds, heifers, lactation stage (Rumen8)
3.10	Use of Rumen8 software for ration calculation
3.11	Optimization of ration with Rumen8
3.12	Feeding management guidelines
3.13	Feeding management of dry cows/close-up
3.14	Feeding systems
3.15	Metabolic disorders
3.16	Scoring locomotion and hoof condition
3.17	Mycotoxin in dairy cattle nutrition
3.18	Heat stress in dairy cattle nutrition
3.19	Monitoring feeding management, using KPIs (based on Rumen8)



1. You will learn about (learning objectives):

- Types of metabolic disorders affecting cows.
- Causes of metabolic disorders.
- Prevention measures and management of metabolic disorders.



2. Introduction

- Metabolic disorders/problems are caused by too little or too much nutritional elements in a cow's body.
- There should be a balance of nutritional elements i.e. minerals.



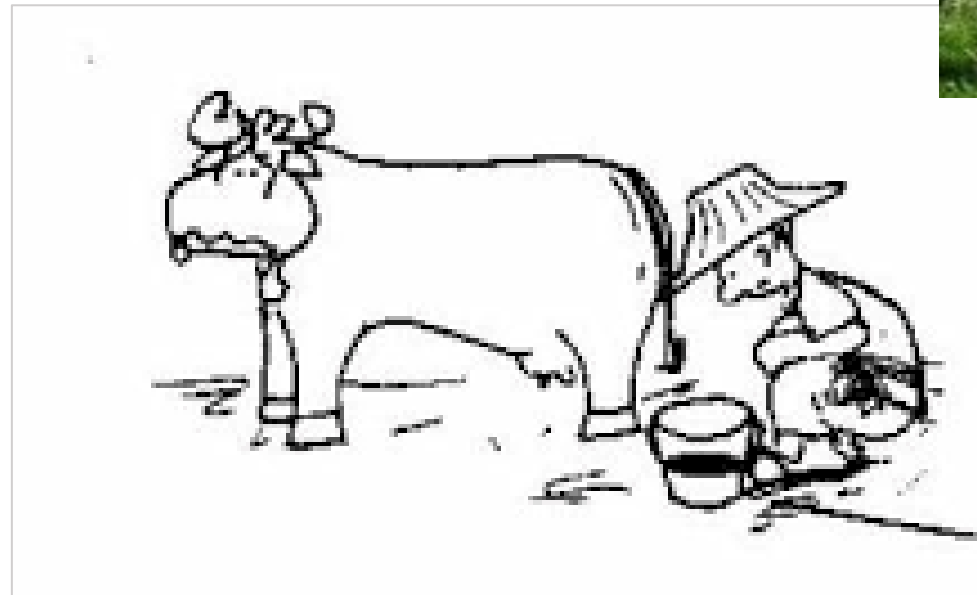
2.1 Introduction Cont'd...

- Metabolic disorders mostly affects animals undergoing internal changes.
- For example, cows that just calve down or cows in high stress situations such as harsh climatic conditions and poor feeding.



3. General effects of metabolic disorders

- Metabolic disorders can cause other diseases.
- Reduces feed intake by cows.
- Negatively affects milk production.
- Affects fertility of cows.
- Death can occur if not noticed on time.



4. Metabolic disorders

- Examples include;
 1. Milk fever
 2. Rumen acidosis
 3. Ketosis
 4. Grass tetany
 5. Displaced abomasum
- Despite that bloat is not a metabolic disease, it will be mentioned and discussed.



5. Milk fever (hypocalcemia)

- Milk fever is caused by low blood calcium in the cow's body.
- It mostly affects milking cows after calving down.
- Cows need a lot of calcium from their body when giving birth and after giving birth.
- This is to enable milk (colostrum) production.
- Poor care in this period will lead to milk fever.



6. Symptoms of milk fever

- Difficulties in breathing.
- Cold ears and low body temperature.
- Dry muzzle.
- Stiffness of hind legs.
- Animal falls easily with reduced ability to stand up.
- Cows leaning their head & neck towards their chest.
- In severe conditions it can lead to death.

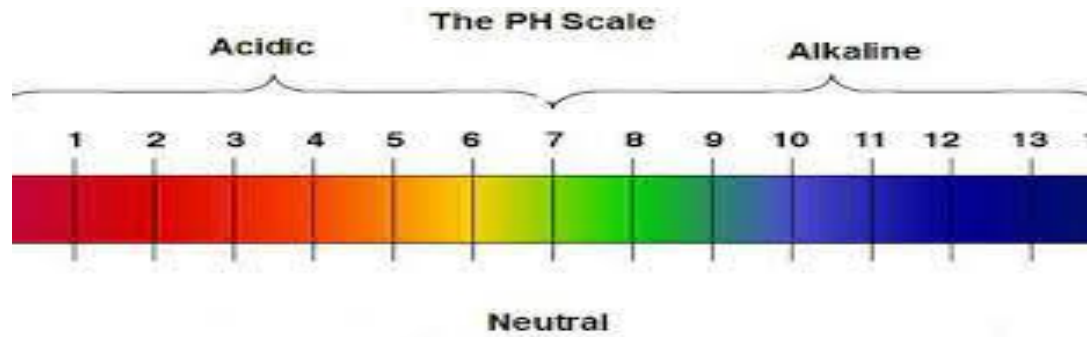
Watch video:

<https://www.youtube.com/watch?v=F85cuRuQjLE>



7. Rumen acidosis

- Rumen acidosis happens in the rumen when the preferred pH levels drops.
- Acidosis occurs when cows take in large amounts of grains/concentrates than forage/grass(fiber).
- This causes rumen pH to drop because the rumen become acidic than normal.



8. Signs of rumen acidosis

- Cows loses appetite to feed/eat.
- The cow diarrhea's/feces are smooth and light/watery.
- Decreased rumination (chewing cud).
- Low skin temperature.
- Dehydration.
- Decreased urine pH.
- Hooves look abnormal (coronal band redden) and become tender.

Watch video:

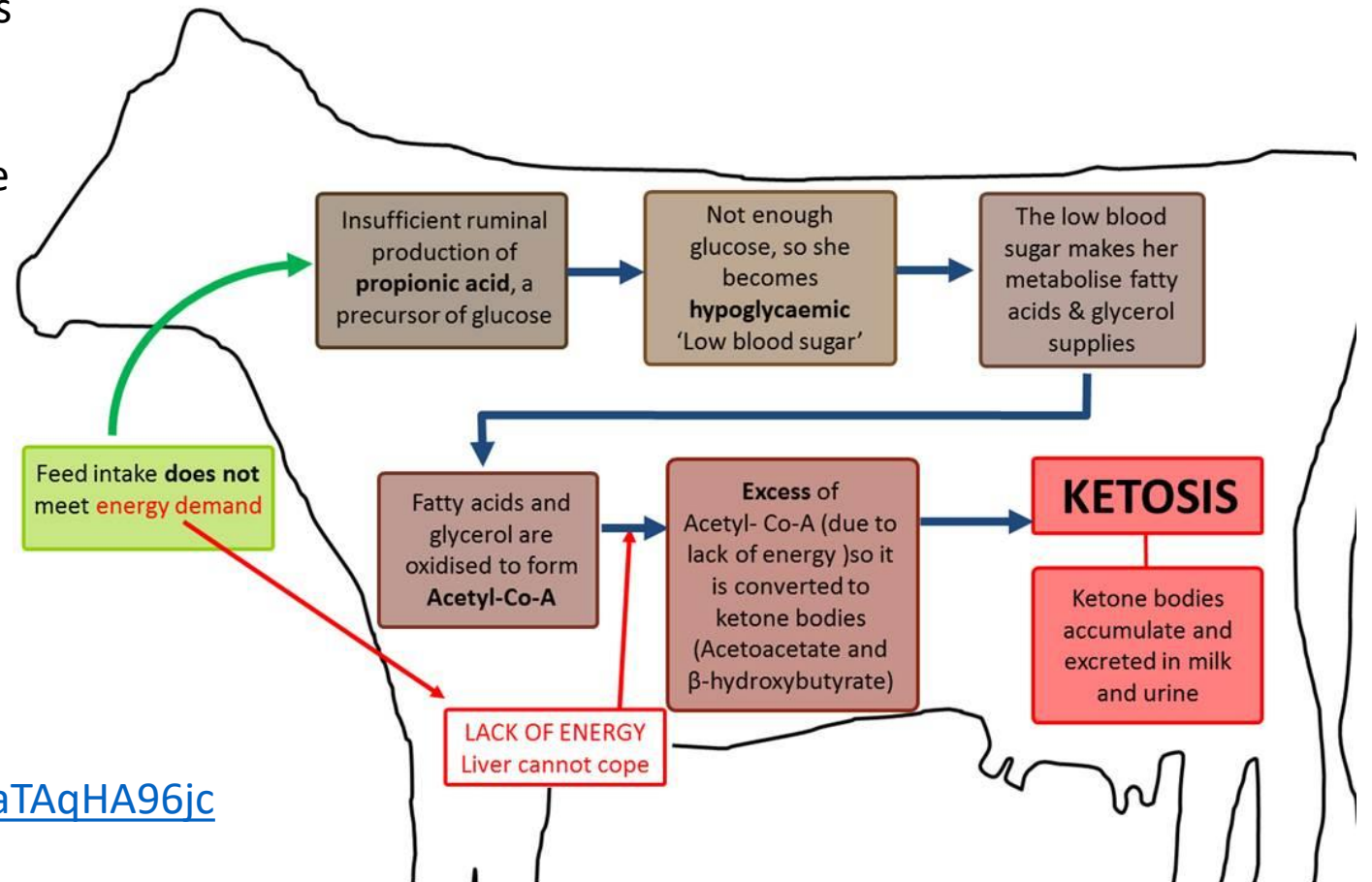
https://www.youtube.com/watch?v=5_qCNmXUKW8



9. Ketosis

- Ketosis occurs when animals get less energy from feed intake than they require.
- It is caused by reduced forage intake due to underfeeding.
- Mostly affects high yielding dairy cows in early lactation stage.
- Also affects cows during dry season.
- In extreme conditions cows may be unable to stand up.

Insufficient feed intake causes Ketosis



Watch video:

<https://www.youtube.com/watch?v=baTAqHA96jc>

10. Signs of Ketosis

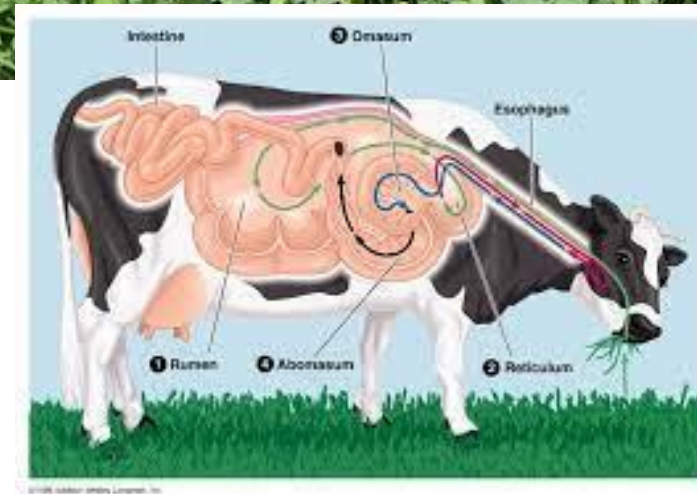
- Cow looks dull and inactive.
- Reduced feed intake.
- Reduced weight.
- Reduced milk yield.
- Sudden increase in milk fat content.
- Reduced rumen movements.
- Breath, milk and urine smells like acetone.



Weight loss in due to Ketosis

11. Grass tetany

- Grass tetany is caused by low blood magnesium in the cow's body.
- It is common in lactating cows feeding on fresh and flourishing pastures that are heavily fertilized.
- Feeding legume forage high in magnesium helps.
- Feed cows with sources of magnesium during high risk seasons.

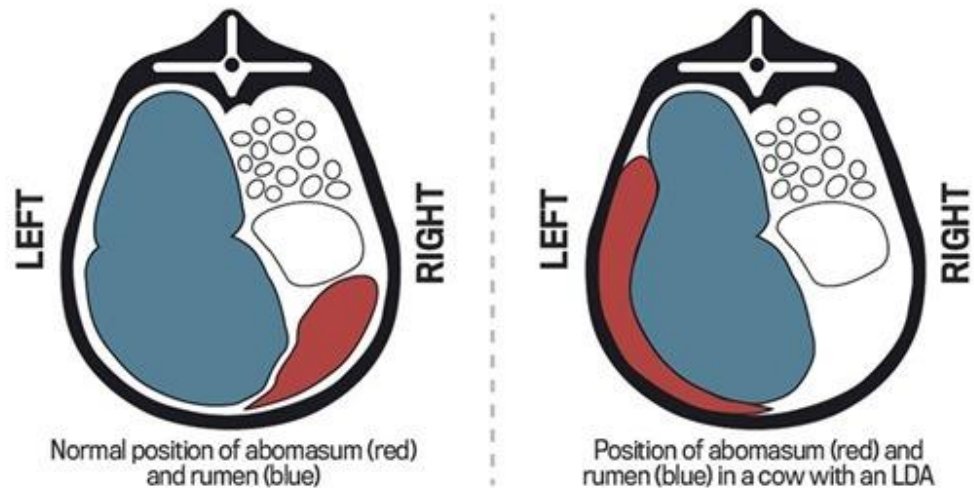


Watch video:

<https://www.youtube.com/watch?v=2g4qP9-bCzU>

12. Displaced abomasum

- When the abomasum moves to the left or right side of the abdominal cavity, it is known as displaced abomasum.
- Displacement of the abomasum is commonly to the left side.
- Occurs mostly during the first months of lactation.
- It is important to gradually introduce grain rations and ensure adequate fiber in the diet.



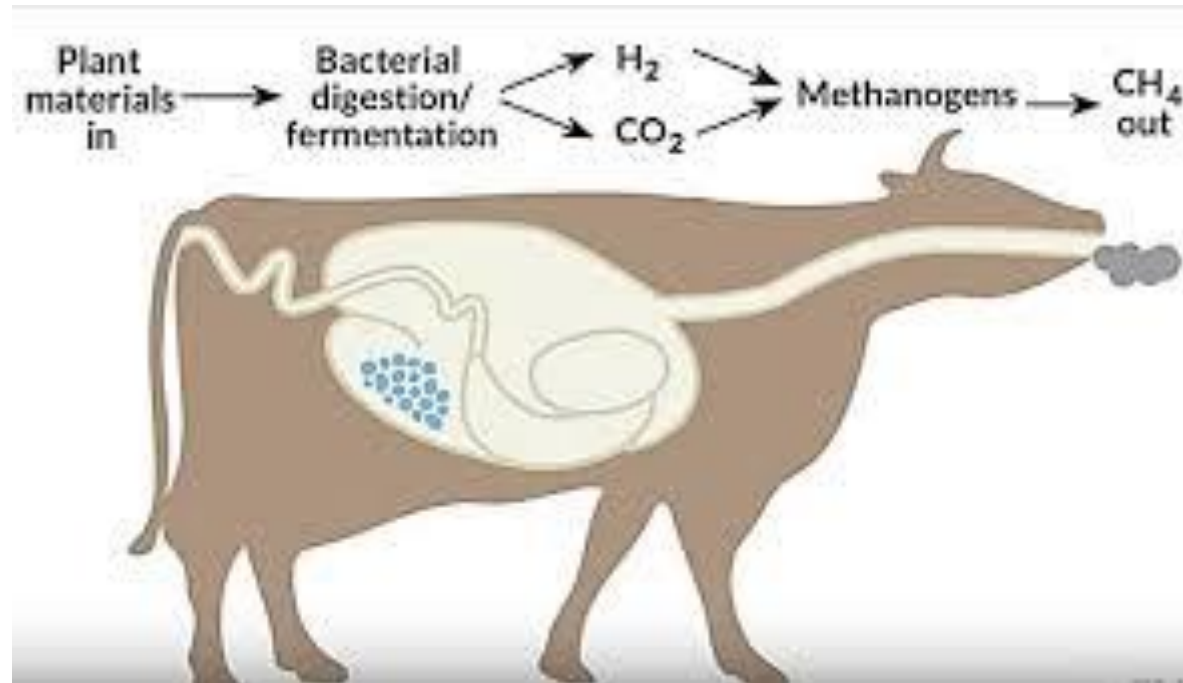
13. Signs of displaced abomasum

- Reduced feeding.
- Decrease in milk production.
- Discomfort and pain.



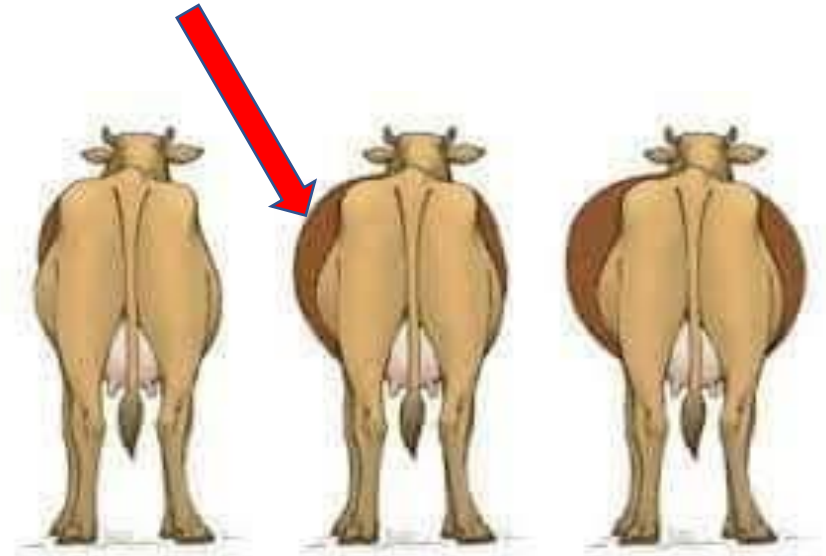
14. Bloat

- Bloat occurs when a cow produces gas in the rumen and expelling the gas becomes impossible.
- Belching removes these gases produced.
- Bloated animals however usually have difficulties belching (erasticating), interrupting gas expulsion.



15. Signs of bloat

- To confirm bloat symptoms in a cow;
 - Rumen (left side) sticks out.
 - Sign of pain in the rumen & abdomen.
 - Discomfort and labored breathing.
 - Cow's can also collapse when it is extreme.



Mild

Moderate

Severe



16. Take home messages/Summary

- Ration formulation for cows should aim to balance forages and concentrates (grains).
- Minimum forage content in the ration is 40% and concentrates not be more than 60%.
- Feeding a total mixed ration (TMR) can help avoid selective feeding by cows.
- Observe animals for symptoms (problems) before they go out of hand.

