BALANCED DIET FOR OPTIMIZING ANIMAL PRODUCTION

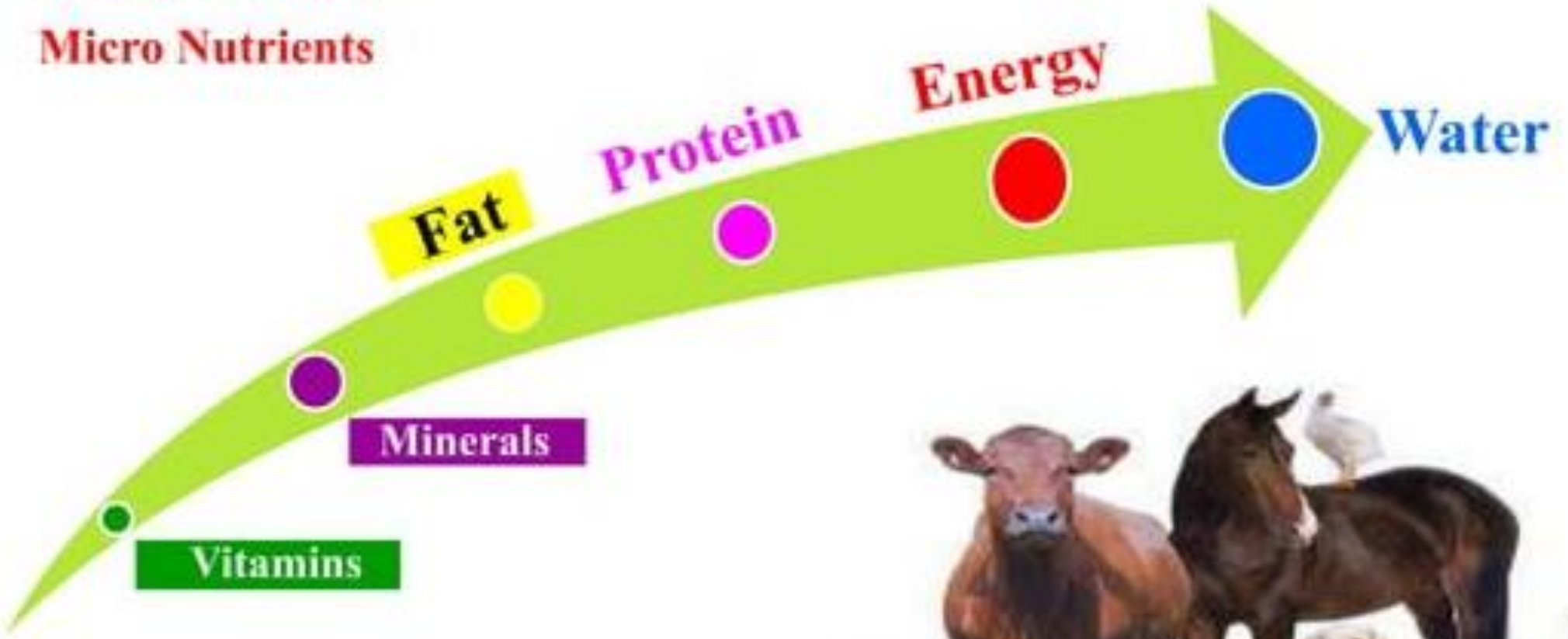
Basic Definitions and Terminologies

- **Balanced Diet** → One which provides different kinds of nutrients in certain quantities and proportions of all the required nutrients
- **Optimizing** → Make the best use of a resource (or) Most effective use of a resource
- **Animal Production** → Meat, milk and eggs
- **Animal Productivity** → Birth rate, mortality rate, off-take rate, etc.

Diet → **Ration** → **Balanced Ration**

Nutrients

- Macro Nutrients
- Micro Nutrients

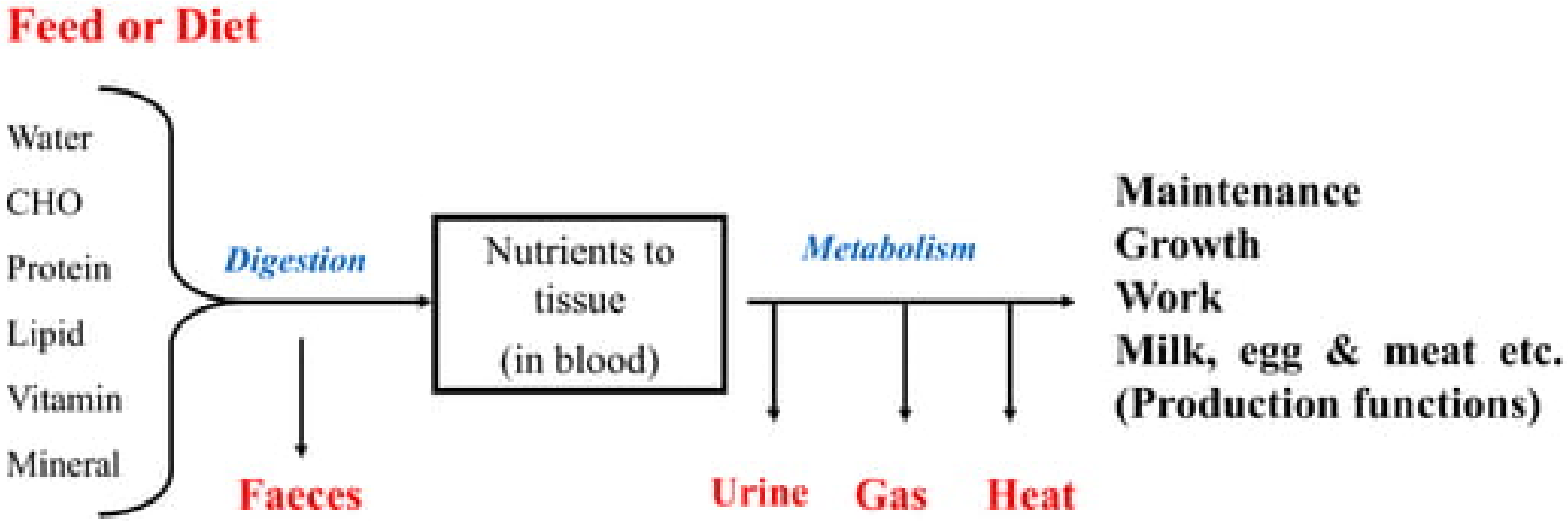


Importance of Minerals

- Minerals are **inorganic elements**
- Required for the metabolic functions, growth, milk production, reproduction and health
- Animal **cannot synthesize** minerals inside its body, it needs to supplement through diet
- **Feed and fodders** are **very poor source of minerals**; do not provide all the minerals required for an animal
- Animal should be supplemented with adequate amount of **good quality mineral mixture** in their ration



Use of Nutrients



Importance of feed and fodder

- **Feed and fodder**
  - **Essential for life**
  - **To exploit maximum genetic potential**
  - **Underfeeding → Deficiency disorders and ill health (reduced immunity)**
  - **Underfeeding → Reduced growth, reproduction and production**
- **Fodders (green and dry) → Play a major role in Ruminant ration**
  - **Provides bulkiness & source of fibre**
  - **Green fodder → cooling effect**
  - **Available in plenty → ↓ concentrate feeding → ↓ production cost**
  - **Poor availability → ↑ concentrate feeding → ↑ production cost**

Why Balanced Ration?

Dairy cows

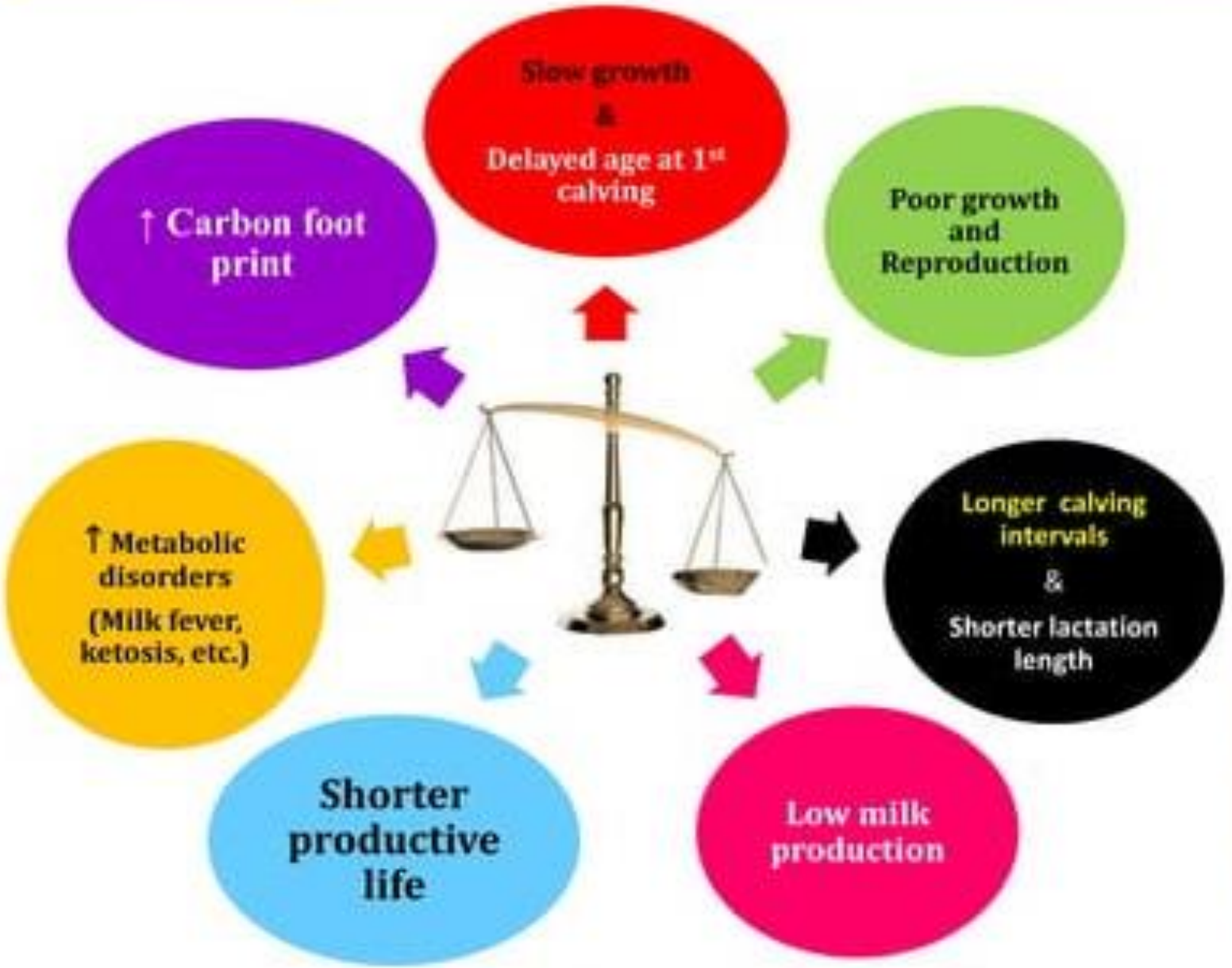
- **Prior to white revolution**
  - Low milk yield
  - Mainly for manure, plowing and bullock carting
  - Very good pastures, grazing lands → Nutritional needs are met
- **After white revolution** → Dairying became an industry
  - **Genetic improvement (Cross breeding)** → ↑ milk yield and faster growth rate
  - Mainly for milk production
  - Lack of pastures and grazing lands
  - **Transition of production practice** → Free-range grazing to confined housing
  - Concentrate feeding is essential to meet the requirements

Poultry → Backyard to deep litter or cage system

- **Faster growth rate of broilers** → from 9 weeks it came to 6 weeks
- **Layers** → from 100 eggs to 300 eggs

Other species → for the better production and productivity

Consequence of Imbalanced Feeding in Dairy Cows



- **Excess feeding**
- Waste of nutrients, nutrients excreted in faeces, environmental pollution, more feeding cost and less profit
- **Under feeding**
- Drain of stored nutrients from the body (ATM machine)
- Short term → Deficiency symptoms
- Long term → Deficiency diseases and disorders
- **High concentrate feeding** → SARA or Acidosis
- **Low energy diet** → Ketosis **(Cattle & Pregnant sheep)**
- **Low protein diet** → Poor growth **(Broilers)**
- **Low calcium diet** → Milk fever
- **Low calcium diet** → Leathery eggs, weak bones & rubbery beak **(Laying hens)**

Thank you!