

NUTRITION

BASED ON GENETICS AND RUMINANTS

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NUTRITION

- NUTRITION – THE PROCESS BY WHICH AN ORGANISM TAKES IN FOOD FOR THE PURPOSE OF GROWTH AND MAINTENANCE
- FEEDS AND FEEDING – ANY INGREDIENT FED TO AN ANIMAL FOR THE PURPOSE OF SUSTAINING THEM
- THE PRODUCTIVITY OF RUMINANTS IS DETERMINED BY THE QUALITY AND QUANTITY OF FEED CONSUMED.
- DISCUSSES THE SUBSTANCES AND PROCESSES BY WHICH ANIMALS USE THESE SUBSTANCES FOR BASIC LIVING, GROWTH, PRODUCTION AND REPRODUCTION

WHY RUMINANT NUTRITION IS IMPORTANT?

- AFFECTS PROFITABILITY OF LIVESTOCK
- SINGLE MOST COSTLY PART OF ANIMAL PRODUCTION
- THROUGH PROPER NUTRITION, WE CAN ENSURE EFFICIENCY OF LIVESTOCK

WHY ARE RUMINANT ANIMALS FED?

- ANIMALS ARE FED FOR 2 MAIN REASONS:
 - MAINTENANCE
 - ANIMAL IS FED ENOUGH TO MAINTAIN BIOCHEMICAL PROCESSES IN ORDER TO SUSTAIN LIFE
 - GENERALLY 2~3% OF ANIMAL'S BODY WEIGHT
 - PRODUCTION
 - ANIMAL IS FED ENOUGH TO SUSTAIN LIFE AS WELL AS GIVE OFF SOME SORT OF PRODUCT DUE TO THE SURPLUS FEED
 - GENERALLY 3%< OF ANIMAL'S BODY WEIGHT

WHAT KIND OF RUMINANT NUTRITION SEGMENTATIONS?

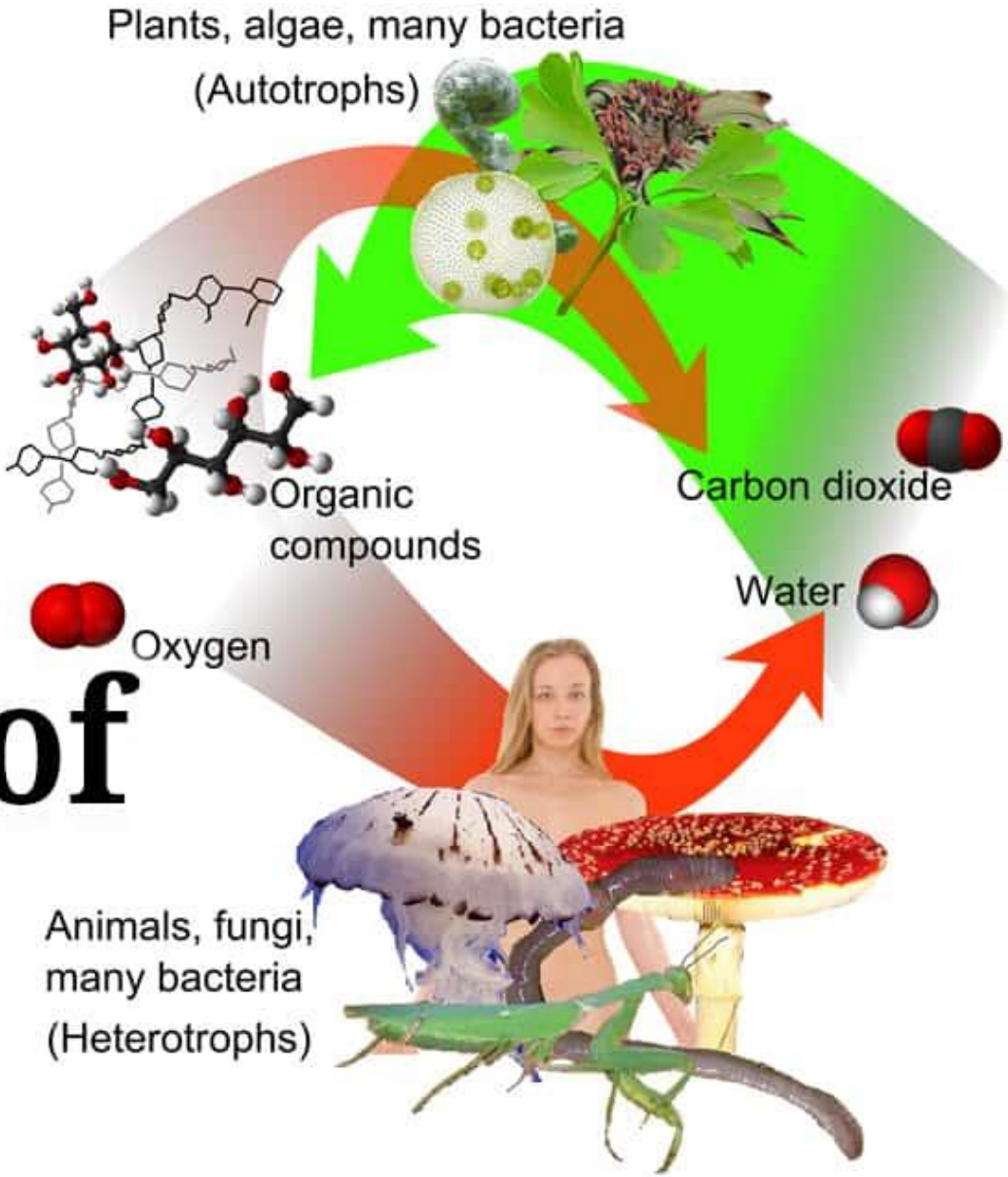
- RUMINANT NUTRITION: A SYMBIOTIC RELATIONSHIP 
- RUMINANT NUTRITION: FORAGE QUALITY 
- RUMINANT NUTRITION: SPECIES AND FORAGE MANAGEMENT 

WHAT ARE RUMINANT PRODUCTION?

- WOOL
- MEAT
- OFFSPRING
- MILK

****MAINTENANCE MUST BE MET BEFORE PRODUCTION OCCURS!

Autotrof Dan Heterotrof



NUTRIENTS

- DEF: CHEMICAL SUBSTANCES IN EITHER MINERAL OR COMPOUND FORM THAT ARE ABSORBED FROM THE DIGESTIVE TRACT INTO THE BLOOD THAT FUNCTION IN METABOLISM IN THE BODY

- 6 BASIC NUTRIENTS
 - WATER
 - CARBOHYDRATES
 - FATS
 - PROTEINS
 - VITAMINS
 - MINERALS

WATER

- ◎ THE NUTRIENT THAT WHEN LACKING, CAUSES DEATH THE FASTEST (10%)
- ◎ CHEAPEST, MOST ABUNDANT NUTRIENT
- ◎ NEEDED FOR BIOCHEMICAL RXNS
- ◎ TRANSPORT OF NUTRIENTS AND WASTES
- ◎ BODY FORM
- ◎ REGULATION OF BODY TEMPERATURE

CARBOHYDRATES

- ◎ DEF: ORGANIC COMPOUNDS COMPOSED OF C, H, AND O.
 - EX: CONCENTRATES, MOLASSES, POTATOES, BREAD
- ◎ MAKEUP 75-80% OF TOTAL RATION
- ◎ MAJOR FUNCTION – TO SUPPLY ENERGY AND HEAT (EXCESS IS STORED AS FAT)
- ◎ CHO'S CAN BE SIMPLE OR COMPLEX
 - MONOSACCHARIDES – ONE SUGAR (C₆ H₁₂ O₆)
 - EX: GLUCOSE, FRUCTOSE
 - DISACCHARIDES – 2 MONO. + 1 H₂O (C₁₂ H₂₂ O₁₁)
 - EX: SUCROSE, LACTOSE
 - POLYSACCHARIDES – MANY MONO. (C₆ H₁₀ O₅)_N
 - EX: CELLULOSE, GLYCOGEN

FATS/LIPIDS

- DEF: COMPRISED OF 1 MOLECULE GLYCEROL + MOLECULES 3 FATTY ACIDS
 - EX: BUTTER, CREAM, CHEESE,
 - FUNCTION – FURNISH ENERGY
 - FURNISH 2.25 X MORE ENERGY THAN CHO'S

FATS CONT..

◎ SATURATED FATS -

- NO DOUBLE BONDS BETWEEN CARBONS
- VERY STABLE COMPOUNDS
- HARD TO BREAKDOWN AND CATABOLIZE
- HIGHER MELTING POINT

◎ UNSATURATED FATS - OILS

- AT LEAST ONE DOUBLE/TRIPLE BOND
- LOWER MELTING POINT
- MORE UNSTABLE AND VOLATILE
- EASIER TO BREAKDOWN AND CATABOLIZE
- LIQUID AT ROOM TEMP

◎ RUMINANTS

- CAN CHANGE UNSATURATED FATS INTO SATURATED FATS

◎ NON-RUMINANTS

- "YOU ARE WHAT YOU EAT"
- PEANUT MEAL – HIGH LEVELS OF UNSATURATED FATS
 - PSE PORK

PROTEIN

◎ DEF: AN ORGANIC COMPOUND MADE OF C, H, O, N; MADE OF AMINO ACIDS JOINED BY PEPTIDE LINKAGE

- Ex: MILK, FISH MEAL
- FUNCTION – FURNISH AMINO ACIDS AS WELL AS ENERGY

◎ NON-RUMINANT

- MUST CONSUME THE SPECIFIC A. A. IN ORDER TO HAVE IT WITHIN THEIR SYSTEM

◎ RUMINANT

- MAKES EVERY A.A. IT CONSUMES
- BREAKS DOWN A.A. CONSUMED, AND REBUILDS IT INTO A DIFFERENT A.A. IN WHICH ITS BODY NEEDS!
- ONLY 50-60% EFFICIENT IN PROTEIN USAGE

VITAMINS

◎ ORGANIC SUBSTANCES REQUIRED IN SMALL AMOUNTS FOR THE REGULATION OF VARIOUS BODY PROCESSES

- SOURCES: GREEN PASTURE, ALFALFA, YEAST, SYNTHETICS
- 2 CATEGORIES
 - FAT SOLUBLE
 - A, D, E, &K
 - WATER SOLUBLE
 - B AND C VITAMINS
 - RUMINANTS HAVE THE ABILITY TO MAKE ALL WATER SOLUBLE VITAMINS

EACH VITAMIN HAS A CERTAIN BIOCHEMICAL PROCESS IN WHICH IT AFFECTS*

ASSIGNMENT !

1. WHAT DOES VITAMIN B DO FOR RUMINANTS?
2. WHAT DOES VITAMIN C DO FOR RUMINANTS?
3. WHY ARE VITAMINS B AND C IMPORTANT IN RUMINANTS ENZYME ACTIVITY?

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MINERALS

- INORGANIC COMPOUNDS NEEDED FOR BIOCHEMICAL AND METABOLIC FUNCTION
 - FUNCTION – STRUCTURE, CO-ENZYME SYSTEM
 - DIVIDED INTO 2 GROUPS
 - MACROMINERALS- REQUIRED IN LARGE AMOUNTS
 - CA, P, MG, S, NA, K, CL
 - MICROMINERALS – REQUIRED IN SMALLER AMOUNTS (TRACE)
 - MN, FE, CU, ZN, SE, CO, MO, I

**** SALT, CA, P MOST LIKELY DEFICIENT

THANK YOU FOR YOUR ATTENTION