

BIHAR ANIMAL SCIENCES UNIVERSITY
BIHAR VETERINARY COLLEGE, PATNA

Department of Animal Nutrition

ANN-601

Lecture on
General Introduction about Energy and Protein
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Dr. Pramod Kumar
Assistant Professor-cum-Jr. Scientist
Dept. Of Livestock Farm Complex
Bihar Veterinary College, BASU, Patna-14

Nutrient

- A nutrient is a substance that promotes the growth, maintenance, function and reproduction of a cell or an organism.
- The principal nutrients of all feeding stuffs are water, organic and mineral matters.

Classification of Nutrients by Analysis

Energy

Carbohydrate

Lipids

Nitrogen – Free Extract

Crude Fiber

Polysaccharides

simple

Compound

Fatty Acids

sterols

Triglycerides

Phospholipids

Waxes

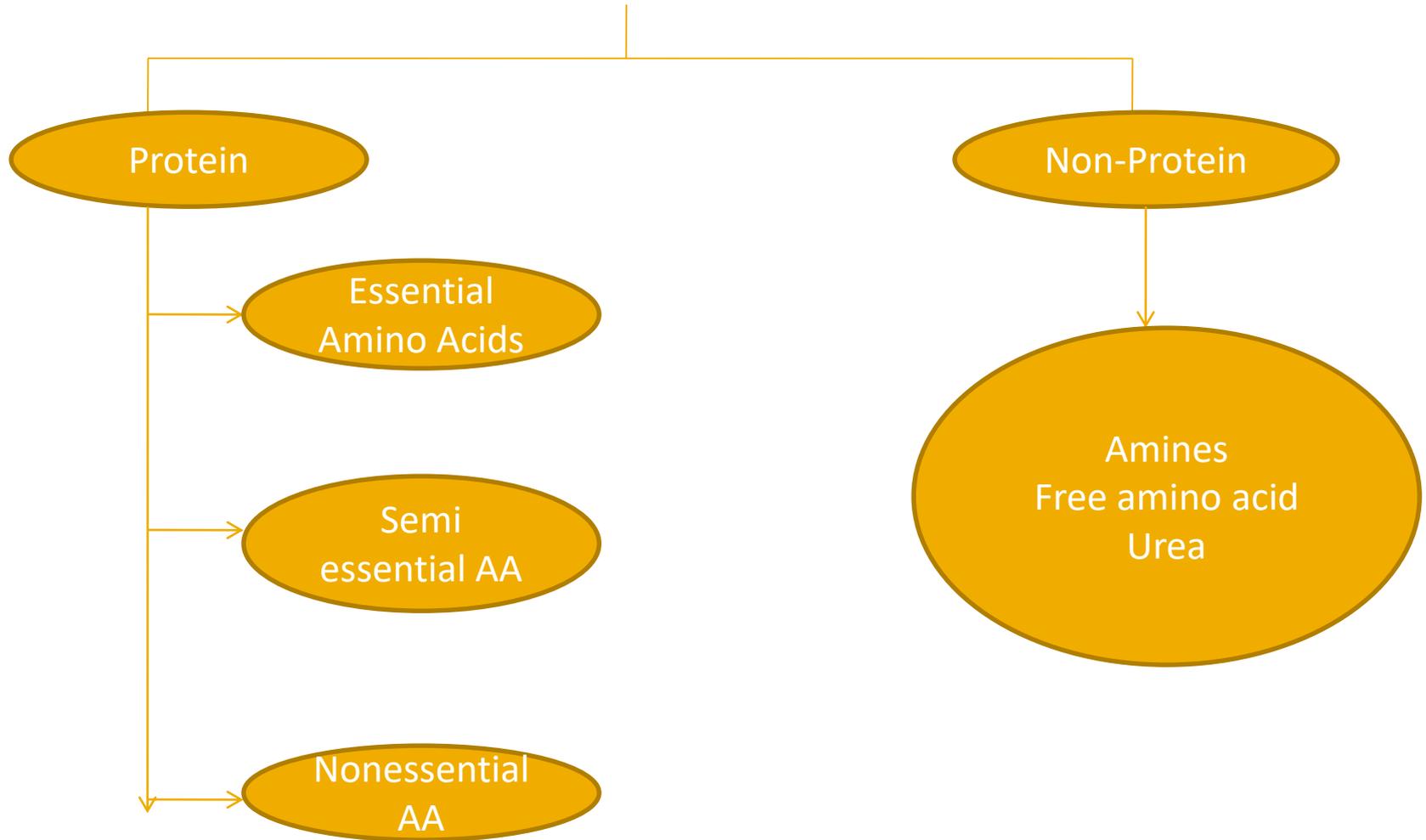
Lignin

Monosaccharides

Disaccharides

Polysaccharides

Nitrogenous



Carbohydrate

- Carbohydrates literally means hydrate of carbon.
- Carbohydrate are all compounds of Carbon, hydrogen and oxygen.
- Hydrogen and Oxygen in carbohydrate are present in the proportion of two hydrogen and oxygen as in $H_{2n}O_n$.

Lipid

- Lipids include all substances extractable from biological materials with the usually fat solvents(Ether, Chloroform, benzene, carbon tetrachloride, acetone etc).
- Like Carbohydrate, the fats contain the elements carbon, hydrogen and oxygen but they are relatively much richer in carbon and hydrogen as shown below

	<i>Carbon</i>	<i>Hydrogen</i>	<i>Oxygen</i>
<i>Fat</i>	<i>77</i>	<i>12</i>	<i>11</i>
<i>Starch</i>	<i>44</i>	<i>6</i>	<i>50</i>

Protein

- Proteins are the major structural components of animal tissue, just as cellulose provides for the structure of the plants.
- Proteins are the components of skin, hair, wool, eggs, feathers, nails, horns, hoofs, muscles, tendons, connecting tissue and supporting tissues such as cartilage.
- The elementary composition of most proteins is remarkably constant at about 51% carbon, 7% hydrogen, 23% oxygen, 16% nitrogen, 1-3% sulphur and less than 1% phosphorus.



Thanks