

# MEDICINE AND MANAGEMENT

By CARL TROOP, VMD



## Feeding terms defined

Before we can begin talking about feeding dairy cattle (or any animal) we must be able to understand the special terminology necessary for communication of ideas in that particular field. We must be sure the terms have the same meaning for author and reader to insure understanding and avoid confusion and misinterpretation. In this column we will only attempt to define some of the terms and phrases necessary for a basic understanding of what we will be discussing in the future.

**Protein** - is the nitrogen containing component of animal and vegetable tissues. They are very complex, being a combination of the various amino acids. They vary greatly in their palatability and digestibility. Approximately 16 per cent of the protein is nitrogen. It is essential for the structure, growth, and normal functioning of the body.

**Carbohydrates** - include starches and sugars (glucose and sucrose) and lignin (wood parts of stems, etc.) (low feeding value) - provides some source of energy - no known requirement.

**Fiber** - Cellulose and those carbohydrates which are resistant to dissolving by weak acids (97 per cent cellulose and lignin, pretty sure to resist digestion). It has very low nutrient value but is essential in the diet to a considerable degree. Feeds vary greatly in fiber content (example corn 2 per cent oats 11 per cents).

**Fat** - supplies essential fatty acids and source of fat soluble vitamins found in animal tissues and many plants - very high in energy (2.25 times energy value of proteins and carbohydrates). Essential to a considerable degree in rations where high energy required, can be from plant or animal source and vary greatly in digestibility (hay fat can be up to 60 per cent non-digestible, grain fat up to 15 per cent non-digestible).

**Nutrient** - any food constituent that aids in the support of life - proteins, carbohydrates, fats, minerals, vitamins, and most importantly but most often forgotten, water.

**Digestible nutrient** - that portion of a nutrient which may be digested and taken into the body - generally applied only to protein, carbohydrates, and fats. - Total gross intake minus that lost in the feces.

**Total digestible nutrients (TDN)** - The sum of all the digestible organic nutrients - protein - fiber - carbohydrates, and fat (fat is figured at 2.25 X its weight because its energy value is that much greater than

proteins or carbohydrates). This is the approximate energy value.

**Concentrates** - Feeds high in TDN and low in fiber (may be low or high in protein) Ex. (cereal grains, oil meats, meat scraps, bran).

**Roughages** - Feeds high in fiber and low in TDN Ex. Hay, silage, pasture, haylage.

**Ration** - The feed allowed for a given animal during a 24 hour period.

**Balanced ration** - one which furnishes the nutrients in such proportion and amount as will properly nourish a given animal for 24 hours (Notice the difference between ration and balanced ration, this is the difference between profit and loss, success and failure; this is the great objective in feeding animals.)

**Metabolizable energy** - gross energy minus energy lost in the feces, urine, and gases.

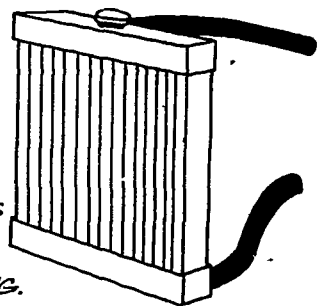
**Net energy** - metabolizable energy minus energy lost in the work of digestion. This is what the animal has left to work with.

**Crude protein** - total protein in the feed.

**Digestible protein** - that per cent of the gross intake which is not excreted in the feces. It is usually quoted

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separately in feed tables because protein has special functions which cannot be performed by other nutrients. Again digestibility can vary greatly from one feed to another.

Cereal grains are generally high in starch, low in fiber, phosphorus, and calcium and usually highly palatable to all classes of livestock. Proteins are not of good quality as they usually have small amounts or lack certain essential amino acids. Legume hay (clover, alfalfa, etc.) will usually balance any reasonable grain diet.

There are over 400 recognized concentrates with new ones being added constantly as by-products of all industries. One cannot learn them all, - it is hopeless to try - the best thing to do is try to familiarize oneself with basic feeding practices and make use of tables of information when necessary.

There is a very good and helpful publication entitled Nutrient Requirements of Dairy Cattle, available for \$3.00 from: Printing and Publishing Office National Academy of Sciences 2101 Constitution Avenue Washington, D.C. 20418.

I would strongly recommend having a copy for ready reference.

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