Chapter 1 : Pandey, Rajesh.-A Text Book of Engineering Mathematics. Volume II - é•“å®¢å·´å·´

A Text Book of ENGIEERING MATHEMATICS VOLUME-I Tel,, E-mail: prasgupt@www.nxgvision.com Printed at: Salasar Imaging Systems.

Gold Medalist Sanjay Kumar B. Animal nutrition is made up of two words i. Dictionary means of animal is any living thing, other than a human being, that can feel and move or a creature with four legs, as distinct from a bird, a reptile, a fish or an insect. Examples are cattle, sheep, goat, horse, dogs and cat etc. In dictionary terms, nutrition is "The series of processes by which an organism takes in and assimilates food for promoting growth and replacing worn or injured tissues". Therefore, nutrition involves various chemical reactions and physiological processes, which transform foods into body tissues and activities. It involves the ingestion, digestion, and absorption of the various nutrients, their transport to all body cells, and the removal of unusable elements and waste products of metabolism So, animal nutrition is the science of nourishment of animals. History of Animal Nutrition: Antoine Lavoisier was the founder of the science of nutrition. He was the father of nutrition. He established the chemical basis of nutrition and stated that life is a chemical process. He introduced the balance and thermameter int nu-rition studies and designed a calorimeter with Laplace. At the beginning, it was believed that nutritive value of food resided in a single aliments. But in early nineteen century it was proved wrong. William Prout reported that nutrient constituent of animal body were provided by three principals i. The importance of other minerals like chlorine, magnesium, sodium, potassium and sulphur were also known during this period. In late 19th century Takaki observed that Beri-Beri disease can be prevented by dietary supplementation. All the vitamins were discovered during the period of Babcock conducted first feeding experiment with single plants. All the grain and forage were from either corn or wheat plants. It stimulated the use of the purified diet method, which resulted in discovery of vitamins. In 20th century various vitamins, minerals, amino acids, fatty acids and their role had been discovered. Various feeding standards indicating the requirements of various nutrients for various categories of livestock for different functions were established. Various non-conventional feeds were discovered as livestock feed. Various economical and balanced rations were prepared for different categories of livestock. So a lot of work has been done in 20th century. Even than, there is a great scope for further improvement and new research in the field of animal nutrition in 21st century. For which a lot of research work is on progress at various research centers and dept. Relationship with other branches of sciences: Animal nutrition has a direct relationship with Physics, Chemistry, Biochemistry, Physiology, Genetics and Breeding, Anatomy and Histology, Biology, Mathematics and Microbiology without which complete study of animal nutrition is impossible. So relative study of other sciences are also necessary and helpful for the animal nutritionists. History of Ammal Nutrition 5 Role of nutrition in animal production and health: The factors responsible for efficient animal production are: Genetic potentiality of animal 2. Nutritional status of animal 3. Managemental factor Nutrition plays an important role in the animal production and health by following ways: It exploites the genetic potentiality of the animal. For example if a cow has capacity to produce 30 litre of milk per day by its genetic make up but it can not be possible if the cattle is under fed. It makes the animal production cheap and economical. So it is the major means by which production system can be made economical. It also minimizes the competition between human and ani- mal for food by introducing non-conventional feed ingre- dients for animal feeding. It also manipulates feed ingredients for effective utiliza- tion of nutrients. In this way nutrition play an important role in animal production and health. Milestones in the development of Animal Nutrition: A Lavosier Nature of respiration, calorimetery. William Prout Nature of food 3. Max Rubner Energy metabolism 4. Mulder Gave the name protein 5. Atwater Slaughter experiment in farm animals First human respiration calorimeter 8. Oscar Kellner Starch equivalent system of energy evaluation 9. Armsby Respiration calorimeter for farm animals Maynard Chairman of the NRC committee on animal nutrition Max Kleiber Use of the weight to the 0. Underwood Mineral nutrition in livestock Bhattacharya Study of recycling poultry waste as feed stuffs. Van Soest Fibre estimation in feed stuffs Henneberg and Proximate analysis of feed stuffs Stohman National Dairy Various research in animal Research Institute, nutrition Sen Nutritive value of Indian cattle feeds and

feeding of farm animals Kehar Nutritive value of non- conventional feeds. Wet alkali treatment to straw Talapatra Methods to estimate minerals in feeds and fodders History of Animal Nutrition 7 Nutritious: Substances that promote growth and participate in repairing tissues of the body. Indian Council of Feeding standard for various Agricultural Research categories of livestock. Hungate Rumen microbiology Casimir Funk Gave term vitamine Nutrition definitions and terms: There are various term and definitions used in animal nutrition which are described as: Nutrition involves various chemical reactions and physiological processes, which transform foods into body tissues and activities. Science of nourishment of animals. The chemical substances found in the feed materials are necessary for the maintenance, production and health of animals. The chief classes of nutrients include- 25 carbohydrates, 15 fatty acids, 20 amino acids, 15 essential and 10 probably essential minerals, 20 vitamins and water or any chemical compound having specific functions in the nutritive support of animal life. Any thing that promotes growth or development. Health is the state of complete physical, mental and social well being and not merely the absence of disease or infirmity as defined by World Health Organization. Handbook of General Animal Nutntion 8 Nutritionist: A specialist in the problems of nutrition. To feed an animal with substance necessary for life and growth. Food of animals comprising any naturally occurring ingredient or material fed to animals for the purpose of sustaining growth and development. A regulated selection of a feed ingredient or mixture of ingredients including water, which is consumed by animals on a prescribed schedule. Any of the feed items that a mixture is made of. An ingredient or a combination of ingredients added to the basic feed mixture for specific purposes like to increase feed ingestion or to alter metabolism. A fixed amount of feed for one animal, fed for a definite period, usually for a 24 hour period. The ration which provide an animal with the proper amount, proportion and variety of all the required nutrients to keep the animal in its form to perform best in respect of production and health. A single feed mixture, which has all of the dietary essentials except water for a given class of livestock. A mixture of the known essential dietary nutrients in a pure form that is fed to experimental animals in nutrition studies. Nutritionally, to add one or more nutrients to a feed. The essential amino acid of protein that shows the greatest percentage deficit in comparison with the amino acids contained in the same quantity of another protein selected as standard. The pericarp or seed coat of grain removed during processing. Grain from which hulls have been removed. A protein of low biological value present in maize, deficient in lysine and tryptophane amino acid. Aerial parts with ears, with husks or heads. Thick solid stem and aerial parts without ears, husks or heads while harvesting maize, jowar commonly the earheads is removed and the remaining dried portion can be classed as stovers i. Outer covering of beans, peas, cotton seeds. Dry outer covering of grains i. Hard outer covering of nuts e. After removal of corn grains. Hay is the product obtained by drying in the sun or in the shade, tender stemmed leafy plant material in such a way that they contain not more than percent moisture. Straw is the by-product of any cereal, millet or legume crop left over after harvesting, threshing and removal of the grains or pulses. It is the fibrous material left over in the sugar factories after extraction of all the juice from sugar cane. When flour is washed to remove the starch, a tough viscid, nitrogenous substance remains.

Chapter 2 : A Text Book of Engineering Mathematics. Volume II - é•“å®¢å·´å·´

Lucknow Tel.: , , E-mail: prasgupt@www.nxgvision.com Printed at: Salasar Imaging Systems C-7/5, Lawrence Road Industrial Area Delhi - Tel.: , Dedicated to my beloved centenarian grandfather Shri Babujan Prasad (- till date) whose blessings have brought me here.

The original top layer of mineral soil divided into Al typically from 5 to 30 cm thick; generally referred to as topSOil with a high content of organic matter, dark colour and maximum biological activity and A2 horizons usually 5 - 70 cm thick; similar texture to Al but paler in colour, poorer in structure and less fertile. Abandoned Well- A water well that is no longer in use or any water well, the use of which has been accomplished or permanently discontinued. A soil having an A, a B, and a C horizon. Non living; moisture, soil, nutrients, fire, wind, temperature, climate Ablation: Loose, permeable till deposited during the final down-wasting of glacial ice. Lenses of crudely sorted sand and gravel are common. The physical weathering of a rock surface by running water, glaciers or wind laden with fine particles. OR Physical wearing and grinding of a surface through friction and impact by material carried in air, water, or ice. Boundary 5 - 20 mm wide. Absolute Date - A statistical estimate of the true age of a mineral or rock in terms of years based on the rate of spontaneous decay of radioactive isotopes. Measurement of atmospheric humidity. Absolute humidity is the mass of water vapor in a given volume of air this measurement is not influenced by the mass of the air. Normally expressed in grams of water vapor per cubic meter of atmosphere at a specific temperature. At this temperature atomic motion stops. Movement of ions and water into as organism as a result of metabolic processes, frequently against an electrochemical potential gradient active or as a result of diffusion along an activity gradient passive. For example, soils absorb water. OR Uptake of matter or energy by a substance Absorption: Atmospheric absorption is defined as a process in which solar radiation is retained by a substance and converted into heat energy. The creation of heat energy also causes the substance to emit its own radiation. A system of properly sized and constructed narrow trenches partially filled with a bed of washed gravel or crushed stone into which perforated or open joint pipe is placed. The discharge from the septic tank is distributed through these pipes into trenches and surrounding soil. While seepage pits normally require less land area to install, they should be used only where absorption fields are not suitable and well-water supplies are not endangered. Geographic model or representation of the real world. For example, maps and globes are abstractions of the real world or concrete space. Fan shaped accumulation of sediment from rivers that is deposited at the base of a submarine canyon within a ocean basin. Another name for ocean floor. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep rocky slopes. An increased rate of erosion caused by humans. Chemicals with ADI levels usually are not considered or suspected to be carcinogens. This classification results from toxicity data collected during prolonged ingestion studies conducted on a number of animals. Minerals occurring in small quantities in a rock whose presence or absence does not affect the true nature of the rock. Slow adjustment of an organism to new conditions in its environment. The growth of the continental masses over geologic time via the addition of marine sediments. These sediments are added on to the edges of the continents through tectonic collision with other oceanic or continental plates. The build-up or increase of one or more constituents in the soil at a given position as a result of translocation. The build-up may be a residue due to the translocation of material out of the horizon or may be due to an addition of material. Usually refers to soluble substances and clay particles. OR Surface addition of snow to a glacier or snowfield. Accumulation of carbonates k: This symbol indicates an accumulation of alkalineearth carbonates, commonly calcium carbonate. Accumulation of gypsum y: This symbol indicates an accumulation of gypsum. Accumulation of jarosite j: Jarosite is a potassium or iron sulfate mineral that is commonly an alteration product of pyrite that has been exposed to an oxidizing environment. Jarosite has hue of 2. Accumulation of salts more soluble than gypsum z: This symbol indicates an accumulation of salts that are more soluble than gypsum. Accumulation of silica q: This symbol indicates an accumulation of secondary silica. Accumulation of silicate c1ay t: This symbol indicates an accumulation of silicate clay that either has formed within a horizon and subsequently has been translocated within the

horizon or has been moved into the horizon by illuviation, or both. At least some part of the horizon should show evidence of clay accumulation either as coatings on surfaces of peds or in pores, as lamellae, or as bridges between mineral grains. Accumulation of sodium n: This symbol indicates an accumulation of exchangeable sodium. Crop science an irrigation ditch or canal. Prokaryotic organism that uses carbonate as a terminal 3 A Glossary of Soil Sciences electron acceptor and produces acetic acid as a waste product. Estimates denitrification by determining release of nitrous oxide N 20 from acetylene-treated soil. Estimates nitrogenase activity by measuring the rate of acetylene reduced to ethylene. Estimates nitrogenase activity by measuring the rate of acetylene reducted to ethylene. Also see acid precipitation Acid peats: GSG classification - These soils show little horizon development, their main feature being the accumulation of a surface horizon of almost black, strongly acid, peaty organic matter which is maintained near saturation with water. The peat is generally well decomposed and sticky, but significant amounts of fibrous roots and partly decomposed plant remains occur near the surface. The lower part is commonly clayey or gravelly grading into the underlying mineral material. Atmospheric precipitation with a pH less than 5. Normal pH of precipitation is 5. Rain with a pH less than 5. An igneous rock that contains more than 60 per cent silica and free quartz. A sudden acidification of runoff waters from the spring melting of accumulated snow in the middle latitudes because of the winter deposition of acidic precipitation. Soil with a pH value less than 7. Pyrite-rich marine clays, muds and sands that have become extremely acid following exposure or drainage as sulfur compounds are oxidised and converted to sulfuric acid. Any substance with a pH below 7. Soils with a ph less than 7. It refers to soils with a B2 horizon that on the whole is strongly acid. Also see basic solution and neutral solution. Acidification can be accelerated by human activities use of fertilisers, deposition of industrial and vehicular pollutants. The hydrogen ion activity in the soil solution expressed as a pH value. The number of hydrogen atoms that are present determines this. It is usually measured by titration with a standard solution of sodium hydroxide Acidophile: Organism that grows best under acid conditions down to a ph of 1. A unit of measurement of land. It is equal to the area of land inside a square that is about feet on each side 43, square feet. A mass of soil occupying one acre of area to a depth of plowing commonly given as six inches. An acre furrow slice is about 2,, pounds, varying with the bulk density of the soil. Crop science the volume of water that would cover one acre to a depth of one foot. Acre-foot - Volume of water , gallons of water required to cover one acre of land with 12 inches of water. Includes many but not all organisms belonging to the order Actinomycetales. A group of microorganisms that usually produce a characteristic branched mycelium. These organisms are responsible for the earthy smell of compost. A group of organisms intermediate between the bacteria and the true fungi, mainly resembling the latter because they usually produced branched mycelium. Associations between actinomycetes and plant roots Activated sludge: Sludge particles produced in raw or settled wastewater primary effluent by the growth of organisms including zoogleal bacteria in aeration tanks in the presence of dissolved oxygen. The term 11 activated" comes from the fact that the particles are teeming with fungi, bacteria, and protozoa. Activated sludge is different from primary sludge in that the sludge particles contain many living organisms which can feed on the incoming wastewater. Amount of energy required to bring all molecules in one mole of a substance to their reactive state at a given temperature. A term used to describe the soil acidity that is in the soil solution. It is the acidity that is measured by a common soil test and is expressed as ph. An individual who has an overt clinical case of a disease and who can transmit the infection to others. Upper zone of soil in higher latitude locations that experiences daily and seasonal freeze-thaw cycles.

Chapter 3 : Anatomia de bovino - [PDF Document]

The sugars, which are components of the polysaccharides together comprising the carbohydrates, which are used for energy storage and structure. Glucose, the most common sugar, is shown in a cyclic form. Note that a sugar must have an aldehyde or ketone and two or more alcohol functional groups by definition. The fatty acids which, together with glycerol, make up the fats used mostly for energy storage and the phospholipids the major component of cell membranes. The 16 carbon fatty acid palmitate is shown below: A typical phospholipid is shown here, replacement of the phosphate ester group with a third fatty acid would give a fat instead: Also, biological systems chose a single chirality for each family e. Cells and Organelles There are two main cell types: Prokaryote Cell The structure of a prokaryote is very much simpler than that of a eukaryote. There are no endomembranes, endosymbionts, nucleus or cytoskeleton. The DNA is carried on the genophore, a circular chromosome, in a ill defined area of the cytosol called the nucleoid. The chromosome is attached to the cell membrane during cell division fission , frequently at a point called the mesosome. Cell division by fission, genophore attached to plasmalemma by mesosome. Bacteria are prokaryotes, lacking well-defined nuclei and membrane-bound organelles, Fig. They come in many shapes and sizes, from minute spheres, cylinders and spiral threads, to flagellated rods, and filamentous chains. They are found practically everywhere on Earth and live in some of the most unusual and seemingly inhospitable places. A Textbook Evidence shows that bacteria were in existence as long as 3. Many scientists now believe that the archaea and bacteria developed separately from a common ancestor nearly four billion years ago. Despite the superficial resemblance to bacteria, biochemically and genetically, the archea are as different from bacteria as bacteria are from humans. In the late s, Antoni van Leeuwenhoek became the first to study bacteria under the microscope. During the nineteenth century, the French scientist Louis Pasteur and the German physiCian Robert Koch demonstrated the role of bacteria as pathogens causing disease. The twentieth century saw numerous advances in bacteriology, indicating their diversity, ancient lineage, and general importance. The discovery that some bacteria produced compounds lethal to other bacteria led to the development of antibiotics, which revolutionized the field of medicine. There are two different ways of grouping bacteria. They can be divided into three types based on their response to gaseous oxygen. Aerobic bacteria require oxygen for their health and existence and will die without it. Facultative aneraobes prefer oxygen, but can live without it. The second way of grouping them is by how they obtain their energy. Bacteria that have to consume and break down complex organic compounds are heterotrophs. This includes species that are found in decaying material as well as those that utilize fermentation or respiration. Bacteria that create their own energy, fueled by light or through chemical reactions, are autotrophs. Capsules play a number of roles, but the most important are to keep the bacterium from drying out and to protect it from phagocytosis engulfing by larger microorganisms. The capsule is a major virulence factor in the major disease-causing bacteria, such as Escherichia coli and Streptococcus pneumoniae. Nonencapsulated mutants of these organisms are avirulent, i. Cell Envelope - The cell envelope is made up of two to three layers: Cell Wall - Each bacterium is enclosed by a rigid cell wall composed of peptidoglycan, a protein-sugar polysaccharide molecule. The wall gives the cell its shape and surrounds the cytoplasmic membrane, protecting it from the environment. It also helps to anchor appendages like the pili and flagella, which originate in the cytoplasm membrane and protrude through the wall to the outside. Cell wall composition varies widely amongst bacteria and is one of the most important factors in bacterial species analysis and differentiation. For example, a relatively thick, meshlike structure that makes it possible to distinguish two basic types of bacteria. A technique devised by Danish physician Hans Christian Gram in , uses a staining and washing technique to differentiate between the two forms. When exposed to a gram stain, gram-positive bacteria retain the purple colour of the stain because the structure of their cell walls traps the dye. In gram-negative bacteria, the cell wall is thin and releases the dye readily when washed with an alcohol or acetone solution. It is a gellike matrix composed of water, enzymes, nutrients, wastes, and gases and contains cell structures such as ribosomes, a chromosome, and plasmids. The cell envelope encases the

cytoplasm and all its components. Unlike the eukaryotic true cells, bacteria do not have a membrane enclosed nucleus. The chromosome, a single, continuous strand of DNA, is localized, but not contained, in a region of the cell called the nucleoid. All the other cellular components are scattered throughout the cytoplasm. Cytoplasmic Membrane - A layer of phospholipids and proteins, called the cytoplasmic membrane, encloses the interior of the bacterium, regulating the flow of materials in and out of the cell. This is a structural trait bacteria share 9 Fundamentals ofBiochemistnj: A Textbook with all other living cells; a barrier that allows them to selectively interact with their environment. Membranes are highly organized and asymmetric having two sides, each side with a different surface and different functions. Membranes are also dynamic, constantly adapting to different conditions. Like the chromosome, plasmids are made of a circular piece of DNA. Unlike the chromosome, they are not involved in reproduction. Only the chromosome has the genetic instructions for initiating and carrying out cell division, or binary fission, the primary means of reproduction in bacteria. Plasmids replicate independently of the chromosome and, while not essential for survival, appear to give bacteria a selective advantage. Plasmids are passed on to other bacteria through two means. For most plasmid types, mpies in the cytoplasm are passed on to daughter cells during binary fission. Other types of plasmids, however, form a tubelike structure at the surface called a pilus that passes copies of the plasmid to other bacteria during conjugation, a process by which bacteria exchange genetic information. Plasmids have been shown to be instrumental in the transmission of special properties, such as antibiotic drug resistance, resistance to heavy metals, and virulence factors necessary for infection of animal or plant hosts. The ability to insert specific genes into plasmids have made them extremely useful tools in the fields of molecular biology and genetics, specifically in the area of genetic engineering. Flagella - Flagella singular, flagellum are hairlike structures that provide a means of locomotion for those bacteria that have them. They can be found at either or both ends of a bacterium or all over its surface. The flagella beat in a propeller-like motion to help the bacterium move toward nutrients; away from toxic chemicals; or, in the case of the photosynthetic cyanobacteria; toward the light. Nucleoid - The nucleoid is a region of cytoplasm where the chromosomal DNA is located. It is not a membrane bound nucleus, but simply an area of the cytoplasm where the strands of DNA are found. Most bacteria have a single, circular chromosome that is responsible for replication, although a few species do have two or more. Pili - Many species of bacteria have pili singular, pilus , small hairlike projections emerging from the outside cell surface. These outgrowths assist the bacteria in attaching to other cells and surfaces, such as teeth, intestines, and rocks. Specialized pili are used for conjugation, during which two bacteria exchange fragments of plasmid DNA. Ribosomes - Ribosomes are microscopic "factories" found in all cells, including bacteria. They translate the genetic code from the molecular language of nucleic acid to that of amino acids - the building blocks of proteins. Proteins are the molecules that perform all the functions of cells and living organisms. Bacterial ribosomes are similar to those of eukaryotes, but are smaller and have a slightly different composition and molecular structure. Eukaryote Cell The most characteristic feature of a eukaryotic cell, the nucleus, consists of a nucleoplasm surrounded by a double nuclear m"mbrane pierced by nuclear pores. The nucleoplasm contains the linear chromosomes of the cell, which are organised into heterochromatin, which stains only a little, and euchromatin, which stains more densely.

Chapter 4 : APPLIED VETERINARY GYNAECOLOGY AND OBSTETRICS | Chris Garcia - www.nxgvision

This particular branch is engaged in understanding the nature and properties of the life throbbing around us. It is at the threshold where non living biomolecules through some intricate forces starts dancing while getting alive; and we call it a living being.

Kikani Vice-chancellor Junagadh Agricultural University Junagadh Biochemistry is a gateway of all the branches of life science. Biochemistry is a study of the molecule of life. Our understanding of the molecular nature of life is growing at an incredible rate. It is difficult to embody all the information related to this subject in a single collection. If at all it has been done than the user will be discouraged by its volume. It is than even more tough task to encapsulate huge bulk of literature in a small handy book. The tools of biochemistry have been used to explain biological processes such as origin of life, cell development, cell differentiation, metapolisms, energy dynamics, origin and cause of diseases and even human behaviors. The principles of biochemistry are now reaching into chemistry, the health sciences, nutrition, agriculture, physiology, immunology, neurology, cell biology, biotechnology, nanotechnology, ecology, computer science and psychology. Not only the biochemistry expanding; other disciplines are using the tools of biochemistry to solve their unique problem. Thus biochemistry is seated at the core of other branches of science. This particular branch is engaged in understanding the nature and properties of the life throbbing around us. It is at the threshold where non living biomolecules through some intricate forces starts dancing while getting alive; and we call it a living being. This science has yet to fill up a knowledge gap about secret of life itself. This text book is a distillation of the years of experiences of our faculty members affiliated with teaching and research. Hopefully a complete grasp of the principle of biochemistry can be obtained by simply reading this book. Kuchhadiya Director of Research and Dean P. Its a tough task to pack- up it in a single volume. While preparing a brief note of this subject our faculty members worked for more than 12 hours in a day behind each and every chapter even at final stage. They summarized the content without loosing the essense of the concept. While reading any subject our mind do summarize its major points. This book has been able to develop as a ready reckoner. Its my pleasure that our faculty mambers are mastering the art of scientific writing. There is vacume in the area of lucid and lucrative scientific documentation. If we want to propagate the scientific knowledge we should present it in a more simple form, in a pictorial and diagrammatic manner. It should be more graphical and photographica1. I have no doubt that this collection will be appreciated by the students, teachers, researchers and professionals dealing with biosciences. General Biochemistry Glossry Suggested Readings Common Important Abbreviations Index ix Chapter 1 Introduction Biochemistry is the chemistry of living organisms. It bridges the gap between the conventional chemistry and biology. Living organisms have certain extraordinary properties. They can grow, respond to stimuli and replicate themselves with high fidelity. All these activities are ultimately interpretable in chemical terms. The lifeless organic molecules with appropriate complexity and properties make a living thing. The basic phenomena of biochemistry is to understand how the collections of inanimate molecules that constitute living organisms interact with each other to maintain life. The basic life processes or chemistry remains broadly the same whether it is an unicellular microorganism or the higher organisms such as human or plants. Life is nothing but thousands of ordered chemical reactions. In other words, chemistry is the logic of all biological phenomena. Origin of Life What is life? This is not as easy to define as we might like! Life has several properties, none of which are unique or defining, but which together contribute to our understanding of living thing. So when does the first evidence of improbable, information-containing, metabolic replication occur in the fossil record? The Earth is 4, million years old, as judged by several corroborating radionuclide studies of the oldest rocks on the planet show. Meteoric bombardment of the proto-Earth continued heavily until 4,0 MY A, probably precluding life during this period. This means we are either very lucky, or life is a high-on certainty! What did life use as its raw materials? A Textbook seems less likely now, as our understanding of early Earth chemistry has proceeded. This is one of the reasons that hydrothermal vents have become popular: When discussing the first organisms, we should distinguish between the most recent common ancestor of life which may, or may not,

have been Archaea-like and the first forms of life. These may not necessarily be the same thing: VVe might start invoking something shrewlike as the first organism, but this is clearly ridiculous. However, bearing this in mind, it can be noted that the Archaea those weirdarse bacteria that live in boiling sulphuric acids, etc. The formation of polymers is more problematic. A major difficulty is that biopolymers are all thermodynamically unstable relative to their hydrolysis products. Some theories, but no certainty as to how polymers may have formed, though polymers have been synthesized under conditions which may have occurred on the early Earth. The biggest problem for the origin of life is the issue of how we go from polymers to living "systems. However, we could assume a much simpler system in the early, low-competition, Earth. The Elements of Life The basic requirements of an idealized living thing is Simplest life form and ask why life should use the particular atoms and molecules dominating in a particular living organisms. The major component elements are C, H, 0, N in all known organisms are from these periods. Smallest is important because that means they can form the strongest most stable covalent bonds. So these atoms are going to be capable of forming some of the most stable molecules, an important consideration for something that needs to grow and reproduce in a hostile environment. As a result it can form the backbone of large chain and branched structures, a unique character among the elements. P and S are the smallest elements capable of multiple covalent bonds to C, 0 and N, and which also have available d-shells. The d-shells allow additional transition states and reaction mechanisms. P and S are particularly important in the capture, storage, and distribution of chemical energy. Conveniently these elements are among the most abundant in the Universe. None-the-Iess, these elements were chosen for their special properties, specifically strong covalent bond formation to enable the formation of stable biomolecules , the ability of carbon to form large branched molecules, and for C, N, and 0 the formation of multiple bonds which provides chemical flexibility step-wise oxidations, different hybridization geometries etc. Parte 1 de 5.

Chapter 5 : Glossary of Soil Sciences - PDF Free Download

This book has been written for the purpose to cover the practical and clinical aspects of Veterinary Gynaecology and Obstetrics. The author has tried to prepare this book in a unique manner. The matter has been presented in a very simple language and lucrative manner so that one can read this book in one breath. In many books, very exhaustive and huge informations are given but these are very boring task to read for undergraduate students and clinicians. The aim of the book is to tell a scientific and technically sound precise story instead of presenting a data base encyclopaedia on the subject. Therefore the materials has been arranged accordingly and the supplementary informations or more detailed explanations are given in the boxes which can be consulted at once or return to after the principal points have been grasped. For increasing the interest and to give the information of new advances in the field of Veterinary Gynaecology, the author has made his every possible effort. My main motto in compiling information in this book is to provide relevant information in a simple and interesting way so that matter should not appear difficult to understand by an average undergraduate students. A number of illustrations and photographs have been included to make each chapter meaningful. It is hoped that this style of writing will encourage the use of this book for the final year B. This book also cover clinical cases of cattle and buffalo in an interesting way with new concepts. Wherever it becomes necessary to point out the old concepts of treatment, I did and highlighted the new concepts of treatments. Thus this book gives an information about latest trend of treatments and explain the disadvantages of adopting old trend of treatments. In this book, various interesting and clinically important chapters have been included which are generally not given in the text books available in the market. These are very-very simple and reliable techniques for diagnosis of pregnancy. Generally pregnancy diagnosis viii in small ruminants requires X-ray and ultrasound because only abdominal palpation is not confirmatory diagnosis. Likewise the author has tried to give as many such informations which can be applied in Indian field conditions. Therefore author thinks that this book is a readymade matter on Veterinary Gynaecology and Obstetrics for final year undergraduate students of B. This book is also useful for various competitive examinations and interviews. This book has been divided into three parts. In the part I from chapter 1 to 17 are designed to help the final year students, beginners and clinicians to understand the anatomy and physiology of reproduction, gynaecological examinations and their applications to diagnose the clinical problems. In part II, chapters 18 to 28 emphasize the application of basic concepts of obstetrical cases and their management. In this part, author has tried to explain the basic principles of obstetrics, which are generally over-looked in most of the books available in the market. Separate obstetrical cases, their incidences, causes and treatments have not been discussed in detail. Foetotomy and caesarean section have been described in detail. In part III, chapters 29 to 46 have been devoted to the therapeutic management of gynaecological problems. This part describes some of the problems that are commonly encountered in the field. The aim of writing this part is to at least provide a coherent overall therapy guide, create a stimulus and direction for greater in-depth study on particular chapter, and contribute a useful compilation of existing practical therapeutic knowledge for the veterinary undergraduates, clinicians and academicians. Antimicrobial agents are the most frequently used and misused drugs in veterinary practice. A rational approach to antimicrobial therapy entails choosing the proper drug to be administered to the particular animals after considerations of potential benefits and risks. Prerequisites to rational therapy include a diagnosis, understanding of the pathophysiology of the disease and ix pharmacology of the drug and the establishment of therapeutic objectives. It is the purpose of this part to describe an approach to rational treatment of infections, which cause infertility in cattle and buffaloes. Part III also includes effect of homoeopathic medicines on the female genital tract. Hahnemann advocated their use in animals and so Veterinary Homoeopathy has a long tradition. The author encourages constructive comments and valuable suggestions, addition, alteration and correction for any typing error for improving this book in the next edition.

Chapter 6 : Fundamentals of Biochemistry - bioquÃ-mica clinica

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International Book Distributing Co. In view of the immense potential of organic farming in the country, this book is compiled to provide a convenient and concise source of information on production techniques of Compost, Vermicompost, Biofertilizers, BGA and Mycorrhizae, Biopesticides and Organic Nursery Development using tissue culture techniques. I hope that this technical book will enhance the knowledge on productionof organic inputsin the area delineated for "Organic Farming". It may also contribute to generate new and sustainable incomes for many small farmers and also a good business for all the links in the supply chain towards the emerging organic markets. Srivastava ill "This page is Intentionally Left Blank" Preface Organic farming is an environmental friendly ecosystem management in which, use of all kinds of synthetic inputs are eliminated. The area delineated for"organic farming" forbids use of synthetic fertilizers, pesticides, genetically modified seeds GMO and breeds, etc. These are replaced with site-specific management system that maintain and increase long-term soil fertility and prevent pest and diseases. Organic farming uses environmental friendly inputs like compost,vermicompost,biofertilizers,biopesticides,organically grown seeds and seedlings and therefore generates environmental friendly foods and services. Such farming, therefore, positively contributes to marked reduction in air, soil and groundwater pollution. Moreover, it is a solution to the problem created by nitrate pollutionand pesticide residues, imprpves soil structure, fertility and soil fauna. This technical gUidebook presents production techniques of compost, vermicompost,biofertilizers,biopesticidesand organic nursery. The book is useful for organic operators, students, NGOs planners, trainers, agriculture extension officers, progressive farmers, entrepreneurs, consultants, libraries and others actively involved in development of organic farming. Rational Use of Agro-ecosystem 3 1. Suitable Soil Management Practices 14 2. Plant Nutrition and Plant Health 18 3. Process of Composting 23 1. Systems of Composting 26 2. About the Worms 37 2. Requirements for Vermicomposting 38 3. Production of Vermicompost 41 3. Costs of Production 46 5. Biofertilizer and their Beneficiary Crops 51 2. Biofertilzer Production Technology 52 2. Commercial Production of Biofertilizers 56 3. Economics of the Biofertilizer Production 67 5. Technical Aspects of Biofertilizer 69 5. Production Technique of Azolla 74 1. Preventive Measures for Disease and Pest Management 84 2. Curative Crop Protection Methods 86 3. Use of Bio-Fungicides and Bio-Pesticides 88 4. Commercial Production of Bio-pesticides 94 1. Bio-control Units for Insect-Pests 99 2. Bio-control Units for Plant Disease 3. Pesticides Production Unit 4. Bordeaux Mixture 6. Non-Pesticidal Preparation 6. Nursery Technique 1. Plant Propagation by Tissue Culture 2. Evaluation of Organic Inputs 2. How to apply for input approval 3. Information required for Input Approval Frequently Asked Questions References Appendices Index x Chapter 1 Soil Management and Nutrition S oil is the most important production factor for crops and at the same time is also the most influencedby the farmer. Soils are very diverse and complex systems with full of life. The soil itself can be viewed as a living organism, because it is a habitat for plants, animals and microorganisms that are all interlinked. Soil consists in mineral particles, organic matter and pores. Mineral particles originate from subsoil and rock, which gets crushed to smaller and smaller pieces sand, silt and clay through physical and chemical weathering processes. Mineral particlescontainnutrients that are slowlyreleased in the process of weathering. Piant roots and some microorganisms can actively dissolve nutrients from mineral salts and use them for their growth. In addition to mineral salts, soil contains organic matter, resulting from the decomposition of biomass. Organic matter is milinly present in the top layer of the soil, which is subject to continuous transformation processes. Soil organic matter can be further decomposed by soil organisms. The resulting structures can recombine to form very stable humus structures, which can remain in the soil for many years and contributesignificantlyto the improvement ofthe soil structure. What do organic standardssay on plant nutrition? The approach to plant nutrition in organic agriculture is fundamentally different from the practices of conventional agriculture. While conventional agriculture aims at providing direct nutrition to the plants by using mostly easily soluble chemical fertilizers, organic farming feeds the plants indirectly by

feeding the soil organisms with organic matter. Organic soil 1 Production Technology on Bio-organic Farm Inputs fertility managementis based on rational use of native resources achieved through crop rotation, cultivation of legumes, green manures or deep rooting plants and reutilizationof organic farm by-products. Use of auxiliary resources in soil fertility management, i. IFOAM Basic Standards as well as national regulations NSOP define how plant nutrition should be approached in organic agriculture and which materials are allowed, with restrictions and which are prohibited. Following nutrition management practices are recommended: Biodegradable material builds the basis of the fertilization program. The total amount of biodegradable material brought onto the farm unit is limited. Animal runs should be prevented from becoming overmanured where there is a risk of pollution to rivers or groundwater. Brought-in material shall be in accordance with a positive list list of allowed fertilizers-Appendix-l. No manures containing human excrements can be used as fertilizer on vegetation for human consumption if not first sanitized. No chemical fertilizers containing nitrogen can be used; Chilean nitrate and all synthetic nitrogenous fertilizers, including urea, are prohibited. Chemical magnesium and trace elements shall be used only after soil analysis, with prior permission of the certifier and as a supplement to organic sources. Rational Use of Agro-ecosystem 1. It thereby increases the capacity of the soil to supply the plants with nutrients and reduces nutrient losses by leaching. This is especiallyimportantin ferralitic and sandysoils as theynaturally retain very few nutrients. Organic matter also prevents soils from becoming too acidic. Soil organic matter helps to build up a loose and soft soil structure with a lot of pores. This leads to better aeration, better infiltration of water and an easier penetration of roots. The visible parts of organic matter act like tiny sponges which can hold water up to five times their own weight. Therefore, in dry periods more water is available for the plants for a longer time. This is especially importantin sandy soils. The non-visible parts of organic matter act like a glue, sticking soil particles together, thus forming stable crumbs. Such aggregates improve the soil structure, especially in clay and sandy soils. Beneficial microorganisms and other soil organisms such as earthworms also feed on organic material, thus decomposing it. As these organisms require sufficient humidity and aeration, soil organic matter provides a suitable environment for them. Some are of animal origin and some are of plant origin. The organisms vary greatly in size. Some are visible to the naked eye, such as earthworms, mites, termites, etc. Most of them, however, are so small that they can only be seen with a microscope, thus they are called microorganisms. The most important microorganisms are bacteria, fungi and protozoa. Microorganisms are the key elements to the quality and fertility of soils, they do their work inviSibly. The greater the variety of species and the higher their number, the greater the natural 3 Production Technology on BiD-organic Farm Inputs fertility of the soil. Soil organisms are important because they: As the plant roots and the soil organisms consume air, good air circulation within the soil is crucial for their development. Soil organism activity is generally low when soils are dry, very wet or too hot. Activity is highest in warm, moist soils when food Le. Earthworms accelerate the decomposition of biomass by removing dead plant material from the soil surface. Plants of the legume and mimosa family are capable of fixing nitrogen from the air with their roots to use as a nutrient. Legumes do this by living in association symbiosis with bacteria called rhizobium that are hosted in nodules growing on the roots. These bacteria take nitrogen from the air, transform it and make it available for the host plant. Bacteriatake the necessary energy from the plant roots sugars, the products of photosynthesis. The blue-green algae, e. The partnership between plant and rhizobia is usually very specific. For this reason, it may be necessary to introduce inoculate the bacterialegume plants which are grownin a field. The better the nutrient and water supply, soil qualities including soil acidity,temperatureand lightfor the plant, the betterthe legume can supply the bacteria with energy and satisfy its own nitrogen 4 Soil Management and Nutrition needs. Among nitrogen fixing plants the annual and the perennial species can be distinguished.

Chapter 7 : Full text of "A Text Book Of Engineering Mathematics. Pandey, Rajesh. Volume II"

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Biochemistry is a study of the molecule of life. Our understanding of the molecular nature of life is growing at an incredible rate. It is difficult to embody all the information related to this subject in a single collection. If at all it has been done than the user will be discouraged by its volume. It is than even more tough task to encapsulate huge bulk of literature in a small handy book. The tools of biochemistry have been used to explain biological processes such as origin of life, cell development, cell differentiation, metapolisms, energy dynamics, origin and cause of diseases and even human behaviors. The principles of biochemistry are now reaching into chemistry, the health sciences, nutrition, agriculture, physiology, immunology, neurology, cell biology, biotechnology, nanotechnology, ecology, computer science and psychology. Not only the biochemistry expanding; other disciplines are using the tools of biochemistry to solve their unique problem. Thus biochemistry is seated at the core of other branches of science. This particular branch is engaged in understanding the nature and properties of the life throbbing around us. It is at the threshold where non living biomolecules through some intricate forces starts dancing while getting alive; and we call it a living being. This science has yet to fill up a knowledge gap about secret of life itself. This text book is a distillation of the years of experiences of our faculty members affiliated with teaching and research. Hopefully a complete grasp of the principle of biochemistry can be obtained by simply reading this book. Kuchhadiya Director of Research and Dean P. Its a tough task to packup it in a single volume. While preparing a brief note of this subject our faculty members worked for more than 12 hours in a day behind each and every chapter even at final stage. They summarized the content without loosing the essense of the concept. While reading any subject our mind do summarize its major points. This book has been able to develop as a ready reckoner. Its my pleasure that our faculty mambers are mastering the art of scientific writing. There is vacume in the area of lucid and lucrative scientific documentation. If we want to propagate the scientific knowledge we should present it in a more simple form, in a pictorial and diagrammatic manner. It should be more graphical and photographica1. I have no doubt that this collection will be appreciated by the students, teachers, researchers and professionals dealing with biosciences. Properties of Amino Acids Peptides Classification of Proteins Conformation of Proteins Physical and Chemical Properties of Proteins Myoglobin and Hemoglobin Allosterism and Regulation 6. Lipid metabolism Oxidation of Fatty Acids Ketone Bodies Metabolism Fatty acid Biosynthesis viii Triacylglycerol Biosynthesis Regulation of Fatty Acid Metabolism General Biochemistry Glossry Common Important Abbreviations Index ix Chapter 1 Introduction Biochemistry is the chemistry of living organisms. It bridges the gap between the conventional chemistry and biology. Living organisms have certain extraordinary properties. They can grow, respond to stimuli and replicate themselves with high fidelity. All these activities are ultimately interpretable in chemical terms. The lifeless organic molecules with appropriate complexity and properties make a living thing. The basic phenomena of biochemistry is to understand how the collections of inanimate molecules that constitute living organisms interact with each other to maintain life. The basic life processes or chemistry remains broadly the same whether it is an unicellular microorganism or the higher organisms such as human or plants. Life is nothing but thousands of ordered chemical reactions. In other words, chemistry is the logic of all biological phenomena. Origin of Life What is life? This is not as easy to define as we might like! Life has several properties, none of which are unique or defining, but which together contribute to our understanding of living thing. Data DNA is a ternary code. Metabolism complex, autocatalytic biochemistry. Replication self-copying, with heredity. So when does the first evidence of improbable, information-containing, metabolic replication occur in the fossil record? The Earth is 4, million years old, as judged by several corroborating radionuclide studies of the oldest rocks on the planet show. Meteoric bombardment of the proto-Earth continued heavily until 4, MY A, probably precluding life during this period. This means we are either very lucky, or life is a high-on certainty! What did life use as its raw materials? A Textbook seems less likely now, as our

understanding of early Earth chemistry has proceeded. This is one of the reasons that hydrothermal vents have become popular: When discussing the first organisms, we should distinguish between the most recent common ancestor of life which may, or may not, have been Archaea-like and the first forms of life. These may not necessarily be the same thing: VVe might start invoking something shrewlike as the first organism, but this is clearly ridiculous. However, bearing this in mind, it can be noted that the Archaea those weirdarse bacteria that live in boiling sulphuric acids, etc. The formation of polymers is more problematic. A major difficulty is that biopolymers are all thermodynamically unstable relative to their hydrolysis products. Some theories, but no certainty as to how polymers may have formed, though polymers have been synthesized under conditions which may have occurred on the early Earth. The biggest problem for the origin of life is the issue of how we go from polymers to living "systems. However, we could assume a much simpler system in the early, low-competition, Earth. The major component elements are C, H, 0, N in all known organisms are from these periods. Smallest is important because that means they can form the strongest most stable covalent bonds. So these atoms are going to be capable of forming some of the most stable molecules, an important consideration for something that needs to grow and reproduce in a hostile environment. As a result it can form the backbone of large chain and branched structures, a unique character among the elements. P and S are the smallest elements capable of multiple covalent bonds to C, 0 and N, and which also have available d-shells. The d-shells allow additional transition states and reaction mechanisms. P and S are particularly important in the capture, storage, and distribution of chemical energy. Conveniently these elements are among the most abundant in the Universe. None-the-Iess, these elements were chosen for their special properties, specifically strong covalent bond formation to enable the formation of stable biomolecules , the ability of carbon to form large branched molecules, and for C, N, and 0 the formation of multiple bonds which provides chemical flexibility step-wise oxidations, different hybridization geometries etc. Biomolecules to Cells There are a few critically important small molecular precursors to biomolecules found in the environment. Biomolecules can be looked at in two major categories: The small molecules are going to be either metabolites or monomers from which the macromolecules are built. These are mostly metabolites, though the ions can also serve as counter ions along with chloride in creating the intracellular media. These molecules and ions In turn can be made into metabolites, small organic molecules used in energy transformation and as precursors to monomers and macromolecules. The monomers and the associated macromolecules are divided into four major categories: The nitrogenous bases purines and pyrimidines which are components of the nucleic acids RNA and DNA-used for information storage and processing purine ring o Q Both purines and pyrimidines are linked to a sugar, ribose or deoxyribose, and phosphate in their active, nucleotide, forms, as in ATP, below: The sugars, which are components of the polysaccharides together comprising the carbohydrates, which are used for energy storage and structure. Glucose, the most common sugar, is shown in a cyclic form. Note that a sugar must have an aldehyde or ketone and two or more alcohol functional groups by definition. The fatty acids which, together with glycerol, make up the fats used mostly for energy storage and the phospholipids the major component of cell membranes. The 16 carbon fatty acid palmitate is shown below: A typical phospholipid is shown here, replacement of the phosphate ester group with a third fatty acid would give a fat instead: Also, biological systems chose a single chirality for each family e. Cells and Organelles There are two main cell types: Prokaryote Cell The structure of a prokaryote is very much simpler than that of a eukaryote. There are no endomembranes, endosymbionts, nucleus or cytoskeleton. The DNA is carried on the genophore, a circular chromosome, in a ill defined area of the cytosol called the nucleoid. The chromosome is attached to the cell membrane during cell division fission , frequently at a point called the mesosome. No nucleus - free circular genophore. Cell division by fission, genophore attached to plasmalemma by mesosome. Bacteria are prokaryotes, lacking well-defined nuclei and membrane-bound organelles, Fig. They come in many shapes and sizes, from minute spheres, cylinders and spiral threads, to flagellated rods, and filamentous chains. They are found practically everywhere on Earth and live in some of the most unusual and seemingly inhospitable places. A Textbook Evidence shows that bacteria were in existence as long as 3. Many scientists now believe that the archaea and bacteria developed separately from a common ancestor nearly four billion years ago. Despite the superficial resemblance to bacteria, biochemically and genetically, the archea are as different from

bacteria as bacteria are from humans. In the late s, Antoni van Leeuwenhoek became the first to study bacteria under the microscope. During the nineteenth century, the French scientist Louis Pasteur and the German physiCian Robert Koch demonstrated the role of bacteria as pathogens causing disease.

Chapter 8 : Handbook of General Animal Nutrition - [PDF Document]

Textbook of Wild and Zoo Animals[1] - Free ebook download as PDF File .pdf), Text File .txt) or read book online for free.

In his prime youth Ubaid was a symbol of character, courage and determination. He was studying bio-medical engineering at Hyderabad when the dreadful disease called GeT Mediastum struck him in early Ubaid not only lived the disease but devoted every moment to the mission for which he was created by Almighty. The obvious fate could not stop him from delivering his duties towards his family, friends , society or career. When whole family was so devastated and psychologically wrecked, it was Ubaid who stood like a rock looking into the eyes of death with resolute determination. At no point of time neither he fell into despair nor lost his hope. He had absolute faith in Almighty. He faced the test of life valiantly and never slumped into hopelessness or desperation. His spirit and his will to live life was so amazingly powerful. The pious soul departed to heavens on 31 st Dec. This book is dedicated to loving memories of 5yed Ubaid-ur-Rehman. Syed Sajjad Hussain, Dr. Tahseen Lone and Dr. Moulvi is need based in view of the fact that text books alone can not suffice the requirement of u. This manuscript shall serve as a reference book to u. It is aimed to acquaint the veterinary surgeon, in advance, with the knowledge of anatomical structures, he would encounter during the course of surgery on animals. The prior knowledge will make him more confident about the anatomical organ and he can perform surgery without fear and without endangering the life of the patient. This will serve to fill the void between theory and the practice, where a student can independently perform dissections and acquaint himself with the anatomical structure. I compliment authors prof. Seyed Sajjad Hussain, Dr. Moulvi for compiling this manuscript where students of veterinary profession can harvest the benefit of hard work and dedicated efforts put by the authors. Veterinarians can perform more efficiently if they have prior knowledge of the region they are operating upon. There are many books on systemic anatomy of domestic animals, whereas little attention has been paid towards regional! Keeping this pressing requirement in view, an endeavour was made to prepare a manuscript that could help veterinary students and practicing field veterinarians to review, before hand, the structures encountered during a particular surgical operation. The manuscript has been divided into seven chapters and at the end of each chapter common surgical operations, related to the chapter, with respect to anatomical considerations have been described. One would find duplicacies at various places in this maunscirpt. This was unavoidable because there are many structures that are not confined to a single region e. During dissection, where ever it is visible, it needs some description. This way reader can see description in the region he is studying and has not to refer any particular region for this purpose. This Manuscript will not only be useful to the students, but this shall pave a way for field veterinary surgeons to perform surgical operations in animals with more certainty and with prior knowledge of surgical anatomy. Acknowledgement We express our whole hearted gratitude to Prof. We extend our deepest appreciation and thanks to Dr. The book was conceived years ago and its publication is an acknowledgement of his efforts for development of an academic character. We are indebted to Late Prof. The pains taking job of preparing illustrations, by Mr. Sadhu is greatly appreciated. Aftab Artist assisted in preparing many of the illustrations and his work is greatly appreciated. Both artists turned out to be remarkable and the talent speaks in illustration of the text. They dedicated themselves for may months to this project driven by a feeling of personal responsibilities that every piece meets with our satisfaction. We generously acknowledge the critical analysis, counsel and suggestions from Dr. Zaman specialist in Veterinary Surgery and Or. Masrat Khan and Or. A Baba specialist in veterinary Anatomy. We thankfully acknowledge Mrs. Nasreen Malik, for making healthy suggestions during preparation of the manuscript. Our deepest appreciation stand due to Mrs. Assistant for their patience and assistance in typing of the manuscript. We appreciate the inputs of Dr. Both contributed their time and expertise most generously. The International Book Distributing Co. Last but not least, we express deep sense of gratitude to our family member for their patience and constant encouragement during the course of preparation of this book. Incise and remove the skin from one side of the head taking care not to disturb the small superficial muscles which lie immediately underneath the skin, and appreciate the superficial

and deep fascia of the head. The superficial fascia is blended with the periosteum of the nasal and frontal bones and forms a continuous cover except at the nostrils and opening of the mouth. The cutaneous muscle is interposed between the sheaths of the superficial fascia and its facial part or panniculus is well developed being thicker in the intermaxillary space, over the buccinator and temporal muscles as well as on the nasal and frontal regions, forms a remarkably thick and expansive sheet and is termed as Frontalis muscle. A few fibres from the facial cutaneus muscle reach the angle of the lips and help in the retraction of the angle of the mouth. These fibres are termed as retractor anguli oris. The deep fascia covers the buccinator, masseter and temporal muscles ad is attached to facial, parietal and frontal crests besides zygomatic arch. After clearing the fascia, the following superficial structures of the head are revealed in lateral view. It is a short, strong, somewhat quadrilateral muscle situated on the external face of the horizontal ramus of the mandible. It is situated in the temporal fossa and is poorly developed. It is the terminal branch of the facial vein which courses along the medial angle of the eye, toward 1 Regional alld Surgical Anatomy of Bovines the frontal region. It is seen as an extensive but thin muscle covering the external surface 01 the nasal region. It is a broad muscle spreading below the lower eyelid over the masseter and buccinator muscles with which it is blended. It is situated at anterolateral aspect of the face and extends from facial tuberosity to the muzzle. It is a small, fusiform muscle, situated below the zygomaticus muscle, extending from facial tuberosity to the middle of the muzzle. It is a small, narrow but strong muscle situated on the side of the face and runs from zygomatic arch to the upper lip. It is a sphincter muscle around the anterior opening of the mouth. It is poorly developed, situated as a small fascicle in the mandibular lip. It is broad and flat and forms the main muscular tissue of the cheek, covering the lateral wall of the mouth. Dorsal buccal branch of facial nerve VII: It courses from facial nerve, appears on rostral margin of the parotid gland and crosses the external surface of masseter muscle. It is situated on the side of the face, immediately below and in front of external ear in a space between posterior border of vertical ramus of the mandiable and the wing of atlas. It is a flat, oval node lying immediately ventral to temporomandibular joint and is partially covered by parotid gland. It runs on the lateral surface of the masseter muscle, and is dorsal to facial nerve.

Chapter 9 : CalamÃ©o - Production Technology on Bio-Organic Farm Inputs

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