

POULTRY SCIENCE



VI Sem B.Sc. Zoology – Elective Paper

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POULTRY SCIENCE

INTRODUCTION

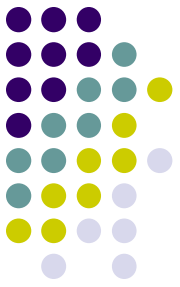




- POULTRY REFERS TO DOMESTIC FOWLS WHICH ARE REARED FOR THEIR FLESH, EGGS AND FEATHER.
- IT INCLUDES CHICKEN, DUCKS, GEESE, TURKEYS, GUINEA FOWLS, PEA FOWLS, PIGEONS, ETC.
- POULTRY SCIENCE IS THE STUDY OF THE PRINCIPLES AND PRACTICES INVOLVED IN THE PRODUCTION AND MARKETING OF POULTRY AND ITS PRODUCTS.
- IT INVOLVES BREEDING, INCUBATION, BROODING, HOUSING, FEEDING, DISEASE CONTROL, MARKETING AND POULTRY-FARM MANAGEMENT.

ADVANTAGES OF POULTRY FARMING

- Eggs and poultry are rich sources of proteins and vitamins.
- Capital investment and cost of maintenance of poultry are very low.
- Needs only small farms
- Income available through out the year
- Poultry is efficient in converting fibre food stuffs into highly nutritious animal protein
- Exotic breeds are well adapted to our conditions
- Poultry manure is an excellent material for enriching soil
- Heavy losses due to flood or drought may not affect



POULTRY PRODUCTS

- EGGS



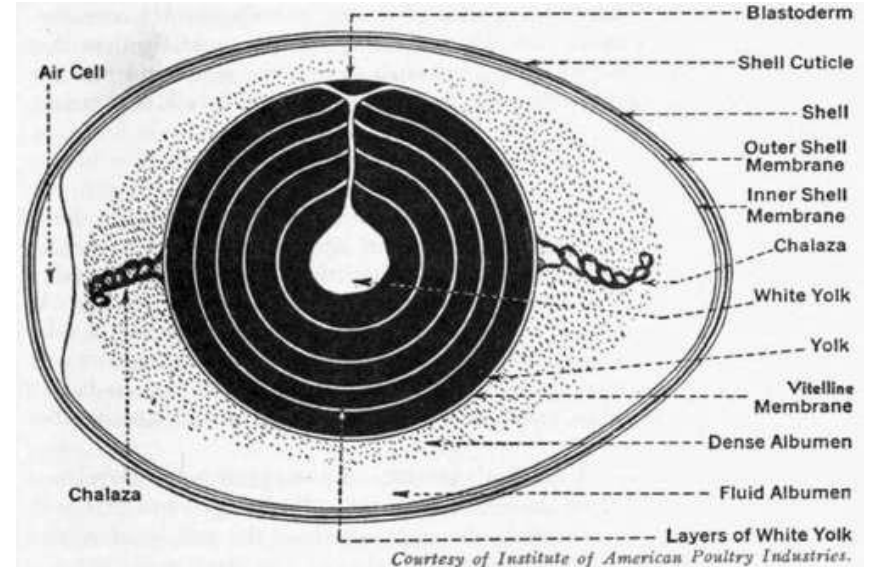
- MEAT

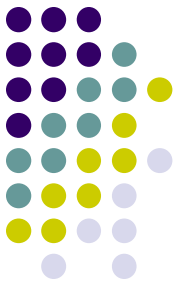


STRUCTURE OF EGG



- TELOLECITHAL,
CLEIDOIC AND OVOID
- SHELL
- YOLK
- ALBUMEN
- BLASTODISC



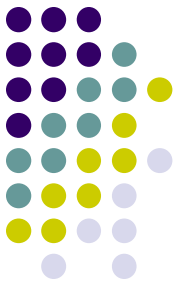


- Yolk and Blastodisc formed from the ovary
- Shell, shell membranes and albumen secreted by the oviduct.
- Shell & shell membrane – protective covering
- Yolk and albumen – reserve food for the developing embryo
- Blastodisc forms the embryo

SHELL



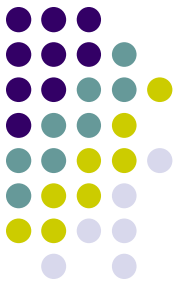
- Shell rigid, porous, calcareous formed of CaCO_3
- Outer layer prevents entry of microbes
- Inner layer source of Ca for embryo



YOLK

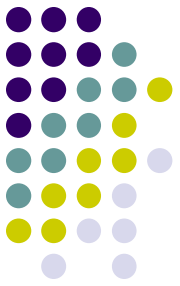
- Occupies the centre of egg yellow & white yolk lying on the top of yolk is the small clear area of cytoplasm containing the nucleus called blastodisc or germinal disc
- Yolk surrounded by vitelline membrane

ALBUMEN

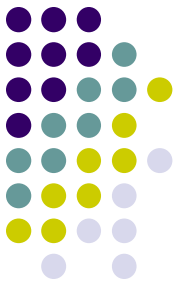


- Occupies space between vitelline membrane and inner shell membrane
- Arranged in four layers
- Chalazae are the spirally twisted cords of dense albumen forming balancers on each side- keeps yolk and embryo in position.
- Albumen serves as shock absorbers & ensures uniform temperature

COMPOSITION OF EGG



- Varies with breed, habitat, environment
- 36% yolk & 64% albumen
- White – protein & sugars, minerals & fats
- 2/3 of solid yolk – fats & 1/3 protein. Also contains traces of lactic acid, creatine, creatinine choline, etc



CARBOHYDRATES

- Sugar glucose is major component – 0.45%
- More in egg white than in yolk

PROTEINS

- 12% of egg is protein
- 64% in egg white & rest in yolk
- Egg white ovalbumin 70% of egg white, 17% conalbumin
- Egg yolk proteins are vitelline, livetins, phosphovitin, phosphoproteins, lipoproteins, lipovitellin, lipovitellin. Contains all essential aminoacids for the growth and development.
- Non protein nitrogenous substances like lecithin, free choline, ovine, etc are also identified in eggs



LIPIDS

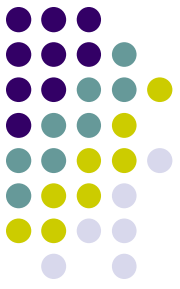
- Ether soluble lipids amounts 30-35 %, phosphatides 4-12%
- Palmitic, myristic, stearic, oleic, hexadecanoic & linoleic acids fatty acids
- 1.8% cholesterol

VITAMINS

- Rich Sources of Riboflavin and Vitamin A & D.
- Others are B 12 , E, K, Folic acid, Niacin, Thiamine, Pantothenic acid, Biotin, Choline, Pyridoxine and Inositol.

ENZYMES

Amylase, diastase, peptidase, phosphatidase, oxidase, proteolytic enzymes, etc



MINERALS

- Rich in mineral contents.
- Calcium, Iron, Phosphorus, Sodium, Potassium, Magnesium, Sulphur, Zinc, Chlorine, Manganese, Iodine, Copper, Fluorine & Selenium
- Trace elements Lead, Chromium, Aluminium, molybdenum, Strontium, Vanadium, Titanium & Barium

PIGMENTS

- Carotenoids – lutein, zooxanthin
- Ovoflavin – a nitrogenous pigment
- Oorodein brown pigment in egg shell

USES OF EGG



- Fertile eggs are used in preparation of vaccines
- Egg white used in manufacture of pharmaceuticals, paints, varnishes, adhesives and painting inks
- Inedible eggs are used in preparations of animal foods and fertilizers
- Egg whites used in photography, book binding, clarification of wines, tanning of leather, textile industry
- Yolk used in manufacture of soaps, paints and shampoos
- Egg shells are used in production of mineral mixtures

POULTRY MEAT

Good source of proteins, vitamins, phosphorus and iron

Nitrogenous substances

- Extra cellular proteins, creatinine, carnosine, urea, ammonia, etc

Fat

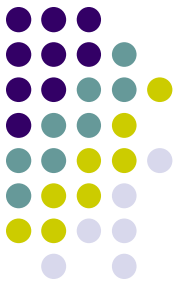
- Abdominal tissue contains 80% of fat
- Breast tissue contains on 0.3%

Vitamins

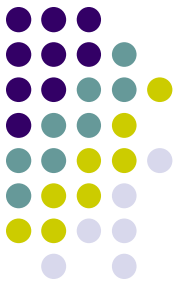
- Riboflavins and nicotinic acid
- Liver contains vitamins A & D
- Dark muscles good source of Thiamin & riboflavin

Minerals

- Ca, Na, K, Ph, Mg, Cl, S
- Iron & Ph
- Trace elements like Cu, Iodine, Mn



BY PRODUCTS

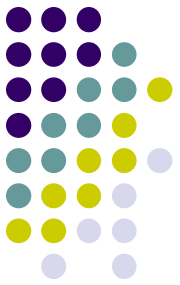


FEATHERS

- Fancy goods, pillows, cushions, mattresses .
- Stiff feathers for shuttle cocks.
- Making animal feeds & manure

POULTRY MANURE

BY PRODUCT FEED



THANK YOU !