Syllabus of agriculture Sciences

UNIT- I

Definition and scope of Agronomy, Classification of field Crops, general principles of Crop production: Climate, soil, soil preparation, seed and sowing, tillage, water management, nutrient management, plant protection management, harvesting, threshing and storage, mixed and inter-cropping, manure and fertilizers, cultivation of common crops- Cereal Crops : Wheat, Barley, Oat: oilseed Crops : Rapeseed and mustard Linseed, Sunflower ; Pulse crops : Chick pea, field pea, Lentil, Rajmah, Fodder Crops : Oat, Berseem, Lucerne; Cash Crops : Potato, sugarcane, recommended varieties, seed rate, time and method of sowing, irrigation, manure and fertilizer, weed controls, insect-pests and diseases, harvesting, processing and yield. Soils- origin and classification loam, silt, clay, sandy loam, physical and chemical properties of soil. Use of fertilizers, essential nutrients- nitrogen, phosphorus and potassium, organic and inorganic fertilizers and their effects on crops and soil, FYM and green manauring, water requirement of crops, measurement of water discharge, prevention of loss of water, different methods of irrigation – flooding, basin method, border /strip method, sprinkler and drip irrigation. Disadvantage of excess moisture, prevention of formation of acidic and alkaline soils and their management.

UNIT –II

Study of horticultural crops including recommended varieties and their main features, suitability for different regions, time and method of sowing, manure and fertilizer, irrigation, diseases and pests and their control. major vegetables like Potato, Brinjal, chillies, tomato, Cauliflower, Cabbage, knol khol, Onion, Watermelon, Okra, Radish, Carrot and Pea. cucurbits, bittergourd, bottlegourd, muskmelon, ridge gourd, root crops-carrot, radish sweet potato, turnip, fruits vegetables-tomato, bringal, botanical Classification of vegetables and fruits, pruning and training of fruit plants, Unfruitfulness , Fruit drop, Polyembryony, Parthenocarpy and incompatibility. Practices involved in the production of fruits: Mango, Guava, Kagzi lime, Banana, Grape, Litchi, Papaya, Loquat, Aonla, Ber, Jack Fruit, Apple, Pear and Peach, Production techniques of plantation crops: Coconut, Cashew nut, Tea Coffee and coca

UNIT-III

Type of iron and steel, wood, plastic and tin used in agricultural implements and their forms & properties. Study of different types of ploughs- indigenous, chisel, rotary and disc plough,. their management & cost, selection of prime movers, water lifting devices; discharge, command area, cost of different system; soil preparation, methods of ploughing, need for tillage, kinds of tillage, mechanical Power transmission through belts, pullies and gears, EC engine and its components. Classification of tractors, Elementary knowledge about main components of tractor and their functions such as steering, clutches, transmission gears, differential and final drive, Introductory agricultural economics-meaning and scope, Production – meaning, factors of production such as land, labour, capital and management, properties of factor of production; law of returns; intensive and extensive agriculture, law of demand, relative prices and standard of living; Cooperation - meaning, principles of cooperation, land development banks: Agriculture-place in Five Year Plans; Extension Education, Extension Teaching and Learnin. Extension and Rural Development Programmes: Including T and V system, National Demonstration, IRDP, Jawahar Rojgar Yozana.

UNIT-IV

Study of major breeds of cow, buffalo, goat, sheep, poultry and Pig; Physiology and anatomy of cow and buffalo; characteristics of good milch cow and buffalo, bulls and bullocks. Care and management of pregnant cow, poultry management. Principles of feeding of various classes of livestock and poultry. Clean milk production and maintenance of hygiene. Common medicines and vaccines used in treatment/prevention and control of animal diseases; handling of animals for treatment; castration. Operation flood, Milk and Milk products, Identification of Adult rated milk. Importance of farm's livestock and poultry in agriculture and Indian economy, Pathogenesis disease and vaccination. The antigens, antibiotics, antiseptics, disinfectants, The milk and its synthesis in mammary glands. Composition of milk of different species and colostrum. Details composition and physio-chemical properties of cow and buffalo's milk. Factors affecting quantity and chemical composition of milk. Chemistry of milk constituents viz. lactose, fat, protein, enzymes and vitamins. preservatives and adulterants of milk. Chemical changes occurring during storage of milk. Classification of common feeds and fodders, low-cost balanced feeds. Evaluation of energy and protein value of feed. Processing methods of animal feed stuffs. Processing of milk for filtration, clarification, bactofugation, standardization, homogenization, cream separation-centrifugation. Indigenous milk products-paneer, chhana, ghee, khoa, dahi. Other milk products- cream, butter, ice-cream, condensed milk, milk powder, cheese, dairy by products.

UNIT-V

Mendel's Law's of heredity, Chromosomal theory of inheritance, meiosis and mitosis, Linkage and crossing over - types, mechanism and significance, Nucleic acid as genetic material - structure, replication, genetic code and translation, Mutation - spontaneous and induced, Sex chromosomes and its determination in man and droisophila, sex linked characters. Mean as measures of central tendency-Mean, Median, Mode, Geometric Mean, Harmonic Mean, Weighted Range, Quartile Deviation, Variance, Standard Deviation and Coefficient of variation. Chemistry of Carbohydrates- Glucose, fructose, Galactose, Sucrose, Lactose, Maltose, Starch, Cellulose. Ammo acids, Lipids and fatty acids. Vitamin A, D, E, K, Thiamine, Riboflavin and Nicotinic acid, Plant growth substances, photoperiodism and verbalization, Insect Anatomy: Digestive, Excretory, Reproductive, Circulatory, Respiratory and Nervous systems of grasshopper, General introduction to Phylum Arthropoda, class Insecta, Mode of reproduction in crop plants in relation to breeding techniques. Genetic consequences of self and cross pollinated crops. Plant Introduction and exploration, Breeding self pollinated crops, population's improvement, Mass selection, recurrent selection. Breeding cross pollinated crops mass selection, pedigree, bulk and back cross methods. Classification of plant diseases according to cause and occurrence. Plant Pathogens: Fungi (Albugo. Erysiphe, Ustilago, Claviceps and Puccinia. Diagnositic characters of the following genera: Phytophthora, Peronospora, Sclerospora, Ustilago, Sphacelotheca, Tolyposporium, Melampsora, Alternaria, Cercospora, Fusarium, Helminthosporium, pyricularia, Rhizoctonia and Colletotrichum. Preliminary knowledge of hazards related to pesticide use, MRL, ADI, Mammalian Safety Ratio .Basic concept of Integrated Pest Management.