B.Sc. (Agriculture)

1.Lab of Agronomy

List of experiments:

2. Study of tillage implements
3. Study of seeding equipments and introduction of remote sensing.
4. Study of different methods of sowing
5. Study of manures, fertilizers and green manure crops / seeds (including calculations)
6. Practice of methods of fertilizer applications
7. Participation in ongoing field operations
8. Measurement of wind direction and speed and relative humidity
9. Study the raising of cereal crops organically through nutrient, diseases and pest management
10. Study the preparation of vermicompost.
11. Preparation of cropping scheme for dryland situations
12. Preparation of integrated farming system model for drylands
13. Visit to urban waste recycling unit
14. Visit to poultry and dairy units to study resource allocation, utilization and economics
15. Visit to an organic farm to study various components and utilization
16. Study the determination of bulk density by field method
17. Study the determination of soil moisture content by gravimetric method and tensiometer
18. Study the calculation of irrigation water requirement
19. Visit to farmers field and cost estimation of drip irrigation system
20. Study the identification of weeds
21. Preparation of herbarium of weeds
22. Study the computation of herbicide doses
23. Study of herbicide application equipment and calibration
24. Study of phyto-toxicity symptoms of herbicides in different crops

2. Lab of Horticulture & Forestry

List of experiments:

1. Demonstration of horticultural tools like containers, potting mixture, potting, depotting and repotting;
2. Demonstration of plant propagation, seed propagation, scarification, and stratification; Demonstration of propagation by cuttings (soft wood, hard wood and semi-hardwood) layering (simple layering, Air layering, stooping in guava)
3. Layout and planting systems (Traditional system and high density planting methods);
4. Demonstration of pruning and training;
5. Irrigation methods in fruit crops including drip – Micro irrigation methods of establishment of orchard;
6. Study the identification of physiological and nutritional disorders and their corrections
7. Visit to local commercial orchards;
8. Application of growth regulators for improving fruit set, fruit size, quality, delaying ripening and hastening ripening.
9. Study the maturity indices of different vegetable crops.
10. Study the description and design of garden structures
11. Study the grading and shorting of vegetables
12. Study the layout of different systems of orchard soil management
13. Study the curing and processing techniques of spice and aromatics plant.
14. Visits to different forest rang
15. Study on types of pits and trenches

3. Lab of Genetics &Plant breeding

List of experiments:

1. Media components and preparations;
2. Performing of sterilization techniques and Inoculation of various explants;
3. Aseptic manipulation of various explants;
4. Callus induction and Plant Regeneration; Micro propagation of important crops;
5. Anther, Embryo and Endosperm culture; Hardening / Acclimatization of regenerated plants; Somatic embryogenesis and synthetic seed production;
6. Isolation of protoplast; Demonstration of Culturing of protoplast;
7. Demonstration of Isolation of DNA;
8. Demonstration of Gene transfer techniques, direct and indirect methods;
9. Demonstration of Confirmation of Genetic transformation; Demonstration of gel-electrophoresis techniques.
10. Study the preparation of micro slides
11. Study the Chi-square analysis and Interaction of factors
12. Study the Induction of polyploidy using colchicines
13. Study the seed sampling
14. Study the germination analysis of Field and Horticultural crops
15. Study the Viability test of Field and Horticultural crops
16. Study the Seed dormancy and breaking methods.
17. Visit to Seed production plots of Maize, Sunflower, Bajra, Rice, Sorghum, Cotton, Chillies and Vegetables.
18. Visit to Seed processing plants.
19. Visit to Hybrid Seed Production farms
20. Study the botanical description and floral biology.
21. Study the plant Breeder's kit
22. Study the Hybridization techniques and precautions to be taken
23. Study the emasculation and Hybridization techniques
24. Study the field lay out of experiments
25. Study the Eestimation of Heritability
26. Study of quality characters of seed.

4. Lab of Plant Pathology

List of experiments:

1. Acquaintance to plant pathology laboratory and equipments;
2. Preparation of culture media for fungi and bacteria;
3. Isolation techniques, preservation of disease samples and Study of Pathogens
4. Preparation of fungicides – Bordeaux mixture, Bordeaux paste, Chestnut compound;
5. Methods of application of fungicides – seed, soil and foliar;
6. Bio-assay of fungicides – poisoned food technique, inhibition zone technique and slide germination technique
7. Bio-control of plant pathogens dual culture technique, seed treatment.
8. Presentation of disease samples survey and collection of Diseases of rice, sorghum; Diseases of wheat, bajra & maize; Diseases of sugarcane, turmeric & tobacco; Diseases of groundnut, castor & sunflower; Diseases of sesamum & cotton; Diseases of redgram, greengram, blackgram, bengalgram & beans; Field
9. visits at appropriate time during the semester Note: Students should submit 50 pressed, well mounted diseased specimens in three installments during the semester.

5. Lab of Agril.Biochemistry/Agril.Microbiology/Plant physiology:

List of experiments:

1. Study the protein estimation by Lowry method
2. Study the Quantitative determination of sugars
3. Study of familiarization with instruments, materials, glassware etc. in a microbiology laboratory
4. Study the methods of Sterilization and Preparation of media.
5. Study the Plating methods for Isolation and Purification of bacteria
6. Study the identification of bacteria by staining methods and Biochemical tests
7. Preparation of solutions
8. Growth analysis of plants
9. Calculation of growth parameters
10. Measurement of water status in roots, stems and leaves;
11. Measurement of water potential by Chardakov's method;
12. Measurement of absorption spectrum of chloroplastic pigments and fluorescence;
13. Measurement of leaf area by various methods; Stomatal frequency and index –
14. Respirometer – Measurement of respirometer; Imbibition of seed; Optimum conditions for seed germination;
15. Breaking seed dormancy; (a) Chemical method (b) Mechanical method; Yield analysis; Seed viability and vigour tests; Effect of ethylene on regulation of stomata.

6. Lab of Social Sciences & Agri. Statistic

List of experiments:

1. Visits to a village and kisan mandal to study the ongoing development programmes.
2. Visits to Panchayat Raj Institutions to study the functioning of Gram Panchayat (GP) & Zilla Praja Parishad (ZPP).
3. Visit and study the District Rural Development Agency (DRDA).
4. Visit to Watershed Development Project area.
5. Visit to a village to study the Self Help Groups (SHGs) of DWCRA.
6. Visit to a voluntary organization to study the developmental activities.
7. Study the tools of financial management and Balance sheet
8. Study of financial institutions: PACS, DCCB, Apex Banks, RRBs, CBs, NABARD.
9. Study the identification of marketing channels
10. Study of unregulated markets and livestock markets
11. Study the analysis of information of daily prices
12. Study the marketed and marketable surplus of different commodities.
13. Study the computation of cost concepts
14. Study the preparation of farm plans and budgets
15. Study the method demonstration.
16. Visit to KVK / FTC.
17. Study the Audio Visual aids.
18. Study the preparation of Charts, Posters, Power Point Slides.
19. Study the computation of Arithmetic Mean for Un-Grouped and Grouped data;
20. Study the computation of Median for Un-Grouped and Grouped data;
21. Study the computation of Mode for Un-Grouped and Grouped data
22. Study the computation of Standard Deviation, Variance and Coefficient of Variation for Un-Grouped and Grouped data
23. Study the Student's t-test for Single Sample and Two Samples
24. Study the Paired t test and F test; Chi-Square Test in 2x2 Contingency Table
25. Study the Computation of Correlation Coefficient 'r' and its testing;
26. Study the analysis of CRD, RBD and LSD

7. Lab of Entomology

List of experiments:

1. Methods of collection and preservation of insects including immature stages.
2. External features of Grasshopper/Blister beetle;
3. Types of insect antennae, mouthparts and legs;
4. Wing venation, types of wings and wing coupling apparatus
5. Types of insect larvae and pupae;
6. Dissection of digestive system in insects (Grasshopper);
7. Dissection of male and female reproductive systems in insects (Grasshopper);
8. Visit to meteorological observatory / automatic weather reporting station;
9. Study of terrestrial and pond ecosystems of insects.
10. Studies on behaviour of insects and orientation (repellency, stimulation, deterancy).
11. Study of distribution patterns of insects, sampling techniques for the estimation of insect population and damage;
12. Pest surveillance through light traps, pheremone traps and field incidence; Practicable IPM practices, Mechanical and physical methods.
13. Practicable IPM practices, Cultural and biological methods; Chemical control, Insecticides and their formulations; Calculation of doses/concentrations of insecticides.
14. Identification of pests, their damage symptoms and management of rice, sorghum, maize, wheat, sugarcane, cotton, pulses, Solanaceous and Malvaceous vegetables, cruciferous and cucurbitaceous vegetables, chilli, mango, carbon, citrus and sapota.

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8.Lab of Soil Science and Agricultural chemistry

List of experiments:

1. Determination of bulk density and particle density, Aggregate analysis, Soil strength
2. Soil moisture determination, Soil moisture constants – Field capacity
3. Demonstration of Infiltration rate,
4. Demonstration of water holding capacity.
5. Demonstration of soil texture and mechanical analysis
6. Demonstration of Soil temperature analysis
7. Collection and processing of soil for analysis – Organic carbon, pH, EC, soluble cations and anions
8. Study of a soil profile – Identification of rocks and minerals
9. Study the determination of bulk density and particle density
10. Study the different soil texture and soil structure.
11. Study of a soil profile – Identification of rocks and minerals.
12. Study the estimation of available N, P, K, S, and Zn in soils
13. Study the estimation of soil Ph value.

9.Lab of Agriculture Engineering

List of experiments:

1. Demonstration of different components of I.C. Engine; four stroke engine, two stroke engine; Demonstration of M.B. plough, measurement of plough size, different parts, horizontal and vertical suction, determination of line of pull etc.
2. Demonstration of disc plough;
3. Demonstration of seed–cum-fertilizer drills-furrow opener, metering mechanism, and calibration; Demonstration of, maintenance and operation of tractor;
4. Demonstration and Learning of tractor driving;
5. Demonstration of maintenance and operation of power tiller;
6. Demonstration of different parts, registration, alignment and operation of mower.
7. Demonstration of Study of different inter cultivation equipment in terms of efficiency, field capacity;
8. Demonstration of Repairs and adjustments and operation of sprayers; Repairs and adjustments and operation of dusters; Study of paddy translators.