

## 1. Introduction

- 1.1. History, Impact and Importance of Crop Research and Development Programs
- 1.2. Agricultural Perspective Plan and its priority in Food Security - Suggestions for timely improvement of the policies
- 1.3. Major Constraints of agricultural production in Nepal
- 1.4. Prospects of commercial, Field and Plantation Crops for commercialization

## 2. Crop Production and its Management (major Cereal crops, pulses, cash crops) in relation to

- 2.1. Introduction, Origin and Distribution
- 2.2. Botany, Physiology, Morphology & Growth Stages of Crop Plant Climate and Soil
- 2.3. Climate and Soil
- 2.4. Recommended Varieties and their Characteristics
- 2.5. Cultivation Practices: land preparation, seed rate, and seed treatment, planting methods, planting time, intercultural operations
- 2.6. Manure's and Fertilizers: recommended dose, method of application, time of application etc
- 2.7. Water management: critical stages of water requirement, time and frequency of water application, irrigation methods & drainage prevalent
- 2.8. Plant Protection Measures: important diseases, insect pests prevalent in Nepal and their control measure / IPM practices
- 2.9. Post harvest practices & handling
- 2.10. Recent Research Findings and ongoing research in public and private

## 3. Weather and crops

- 3.1. Climate-Temperature, Humidity, Rainfall, Sunshine hours, Soil temperature & their effects on crops
- 3.2. Agro climatic Zones, Seasonal Patterns in relation to crops of Nepal.
- 3.3. Effects of Drought, Floods, Cold, Frost Hailstorms & Wind on Crop Production Occurrence of Natural Calamities and its effect on production and productivity in Nepal.

## 4. Land resources & Tillage

- 4.1. Physiographic Distribution and Land System in Nepal
- 4.2. Land utilization
- 4.3. Terrace & Terrace Management
- 4.4. Prevalent Cropping pattern and its effectiveness in enhancing crop productivity

## 5. Biodiversity & Agro biodiversity

- 5.1. Convention on biodiversity
- 5.2. Role of IPGRI in conservation of agro-biodiversity
- 5.3. Plant variety protection and Farmer's right in relation to WTO
- 5.4. Himalayan region as a center of crop plants origin & diversity
- 5.5. Biodiversity and approaches for its utilization and conservation
- 5.6. Agro-biodiversity situation in SAARC Region

**6. Soil & plant Nutrition Management**

- 6.1. Soil of Nepal & their classification
- 6.2. Functions of essential elements and their deficiency symptoms
- 6.3. Importance of balanced fertilizer use in relation to soil condition
- 6.4. Integrated Plant Nutrients and application
- 6.5. Organic Manuring
  - 6.5.1 Organic Manures- Application/Sources
  - 6.5.2 Plants suitable for green manuring
  - 6.5.3 Desirable characteristics of green manuring crops
  - 6.5.4 Constraints of organic manuring
  - 6.5.5 Sources of organic manures
  - 6.5.6 Organic crop production in the present scenario

**7. Water Management in Crop Production**

- 7.1. Irrigation potential in Nepal
- 7.2. Water requirement of major crops
- 7.3. Long Term Planning for the development of appropriate irrigation systems
- 7.4. Some Alternative irrigation practices presently in use
- 7.5. Integrated crop and water management

**8. Weeds & Weed Control**

- 8.1. Principles and methods of weed control practices in Nepal
- 8.2. Herbicides: type, formulation, and mode of action, effects and its use in Nepal
- 8.3. Herbicidal effects on environment and its economic use

**9. Genetics & Plant Breeding**

- 9.1. Major Recent Advances in crop improvement in Nepal
- 9.2. Breeding of Major Field Crops
- 9.3. Genetic basis of plant breeding
- 9.4. Breeding methods: self pollinated & cross pollinated crops
- 9.5. Varietal improvement procedures adopted in Nepal
- 9.6. Use of biotechnology in plant breeding
- 9.7. Development and import of GMO's crops in Nepal

**10. Seed Technology**

- 10.1. Principles and practices of seed production
- 10.2. Seed classification and their qualities
- 10.3. Seed certification procedures and seed certification standards of major crops
- 10.4. Seed regulatory agency and its function in controlling and maintenance of seed standards
- 10.5. Role of Private sector in the production of different classes of seeds
- 10.6. Seed self sufficiency program, its importance and present status

**11. Crop Physiology**

- 11.1. Growth & development
- 11.2. Photoperiodics
- 11.3. Photosynthesis and respiration
- 11.4. Transpiration
- 11.5. Absorption & translocation

लोक सेवा आयोग  
नेपाल कृषि सेवा, एग्रोनोमी समूह, रा.प.प्रथम श्रेणी, खुला र आन्तरिक प्रतियोगितात्मक लिखित परीक्षाको  
पाठ्यक्रम

- 11.6. Stress physiology: cold & heat stress, low & high moisture stresses, etc.
- 11.7. Crop physiology in relation to crop production

**12. Sustainable Agriculture & Farming System**

- 12.1. Sustainable Agriculture
- 12.2. Technology generation and its sustainability
- 12.3. Importance of indigenous technology
- 12.4. Social, economic & institutional aspects of farming system
- 12.5. Gaps in agronomy research & development
- 12.6. Traditional knowledge in conservation and utilization of genetic resources in Nepal
- 12.7. Gender issues in agronomic practices

**13. Biometrics**

- 13.1. Concept and different designs used in agriculture
- 13.2. Use of computer statistical packages in agronomy research and development
- 13.3. Proper plot technique and data analysis
- 13.4. Importance of Biometrics in Agriculture Research
- 13.5. Recent trends and technologies in Biometrics