The book covers Introduction, Origin, Description of Plant and Flower Parts, Nutritive Value, Growth and Development, Agro-Techniques, Management of Water, Weed Management, Seed Production, Handling of Post Harvest Potato, Prospects for Potato Exports, Quality Parameters that influence Export Quality of Potatoes, Areas Suitable for Producing Seed Potatoes, Areas Suitable for Producing Processing Potatoes, Grading of Potatoes, Packing of Potatoes, Potato Storage, Quality Requirements, Potato processing, Dehydration of Vegetables, Potato Based Textured Snacks, Potato Chips/Wafers, Potato Chips (Automatic Plant) with Imported Machinery, Packaging of Snack Foods.

DESCRIPTION OF PLANT AND FLOWER PARTS

- Cytology
- Ploidy
- Breeding
- Introduction and Germplasm Collection
- Selection
- Clonal selection
- Method of Clonal Selection
- Merits of clonal selection
- Demerits of clonal selection
- Hybridization
- Size of Breeding Population
- Heterosis in Potato
- Mutation
- Plant Ideotype
NUTRITIVE VALUE

- Energy Value
- Carbohydrates
- Protein
- Fat
- Dietary Fibre
- Vitamins
- Minerals

GROWTH AND DEVELOPMENT

- Germination/Sprouting of Tubers
- Root, Haulms and Sprout Growth
- Dry Matter Production
- Dry Matter Partitioning
- Tuber Initiation and Growth
- Growth Parameters
- Bud Dormancy of Potato Tubers
- Compounds Bud Dormancy
- Chloroethanol (CICH2CH2OH)
- Thiourea (NH2CSNH2)
- Gibberellins
- Breaking of Dormancy Through Gene Activation
- Factors Affecting Growth and Development
- Environmental Factors
- Light
- Temperature
- Heat Stress
- Frost
- Mechanism of Freezing
- Cold Stress
- Frost Tolerance
- CO2 supply
- Water Availability
- Water Stress
- Soil
- Nutrient Availability
- Role of Growth Regulators
- Effect of Promoters
- Gibberellins
- Kinins
- Effect of the Inhibitors
- Cycocel(CCC) and B-Nine(B9)
• Abscisic Acid
• Morphactins

AGRO TECHNIQUES

• Climate
• Temperature
• Light
• CO2
• Soil and Soil Preparation
• Planting
• Planting time
• Early Crop
• Spring Crop
• Planting Time for Hill Crop
• Planting Time for Plateau Region Kharif crop
• Rabi crop
• Planting time
• Methods of Planting
• Planting Vis-A-Vis Row Orientation
• Depth of Planting
• Planting Spacing in Relation to seed Size
• Seed Rate
• Whole Tuber
• Cut Potato Tubers
• Seed Dormancy
• Methods of breaking dormancy
• Single Treatment with Thiourea
• Double Treatment
• Triple treatment
• Treatment of Non-dormant Potato seed
• Interculture Operations
• Harvesting and Yield
• Potato Cultivation Under Specific Situations
• Cropping System

MANAGEMENT OF NUTRIENTS

• Nitrogen
• Agro Climatic Zone Wise Recommendation of Nitrogen
• Factors Affecting Nitrogen Response of Potato
• Methods of Application
• Foliar application of Urea
• Phosphorus
- Soaking of seed tubers
- Phosphorus Needs of Potato Crop (Zone Wise)
- Potash
- Potassium needs of Potato Crop (Zone Wise) Response of NPK
- Method and Time of Fertilizer Application
- Organic Manuring
- Micro Nutrients
- Diagnosis of Micro Nutrient Deficiencies of Soils and Plants
- Deficiency Symptoms of Micro Nutrient
- Plant Analysis
- Soil Analysis
- Factors Affecting Response of Potato to Micro Nutrients
- Application of Micro nutrients

**MANAGEMENT OF WATER**

**WEED MANAGEMENT**

- Methods of Weed Management
- Non Chemical Methods
- Chemical Methods
- Efficient use of herbicides
- Calibration
- Calculation of herbicides for application
- Integrated Weed Management
- Effect of Herbicides on Quality of Potato

**SEED PRODUCTION**

- Seed Potatoes
- Seed Plot Technique
- Planting
- Impact of the technique
- True Potato Seed (Botanical seed)
- Production of hybrid TPS
- Hybridization
- Seed extraction and storage
- Crop production through TPS
- Nursery
- Channel
- Development of Virus free seed of Potato and Testing for Viruses
- Maintenance of virus tested foundations
- Potato Biotechnology
- Elimination of pathogen through meristem culture
- Potato meristem culture
• Establishment of in vitro cultures
• Steps involved in potato meristem culture
• Meristem Tip culture
• Micro propagation of mericlones
• Micro tuber production
• Production of micro tubers
• Production of normal tubers
• Synthetic (artificial) seed
• Seed Certification
• The aspects taken into consideration for inspecting the crop they are

HANDLING OF POST HARVEST POTATO

• Significance
• Post Harvest Losses
• Enhancement of Shelf Life of Potato Tuber
• Avoid Mechanical Tuber Damage Including Internal Bruising
• Sorting and Grading of Tubers
• Wound Healing and Curing
• Dormancy
• Storage Temperature
• Treatment of Tubers Against Diseases and Insect
• Use of Growth Regulators Against Sprouting
• Regulation of Sprouting in Stored Potato
• Pre Harvest Application for Sprout Suppression
• Post Harvest Application for Sprout Suppressions
• Mode of Application
• Storage
• Controlled and Modified Atmosphere Storage of Potato
• Other Storage Methods of Potato
• Improvised Country Storage
• Viability of Stored Potato Seed
• Gamma Irradiation
• Change in Composition During Storage
• Percentage Dry Matter
• Carbohydrates
• Phenolic Compounds
• Glycoalkaloids
• Vitamins
• Processing
• Morphological characters
• Chemical composition
• Dry matter
• Reducing sugar content
• Varieties for processing
• Practical Aspect of Potato Processing
• Popular Potato Products
• Potato Flakes and Granules
• Potato Dice
• Potato Chips
• French Fries
• Canned Potatoes

PROSPECTS FOR POTATO EXPORTS

• Scenario of potato exports from India
• Future prospects for potato exports from India
• SWOT analysis for potato exports

QUALITY PARAMETERS THAT INFLUENCE EXPORT QUALITY OF POTATOES

• Potato varieties
• Tuber shape
• Tuber size
• Tuber skin colour
• Chemical composition
• Diseases
• Pest
• Physiological disorders
• Storability of potatoes
• Recommended Pre-Harvest Practices for Potatoes
• Soil characteristics and soil management

AREAS SUITABLE FOR PRODUCING SEED POTATOES

AREAS SUITABLE FOR PRODUCING PROCESSING POTATOES

GRADING OF POTATOES

PACKING OF POTATOES

POTATO STORAGE

• Refrigerated storage of potatoes
• Storage of potatoes at 10-12 DoC
QUALITY REQUIREMENTS

- For ware potatoes
- For processing potatoes
- Morphological characters
- Dry matter content
- Reducing sugars content

POTATO PROCESSING

- Important considerations in Potato Processing
  - (A) Specific gravity and dry matter content
  - (B) Sugar content
  - (C) Discolouration
  - (i) Enzymatic discolouration
  - (ii) After cooking discolouration
  - (ACD)
  - (iii) Discolouration of fried products and dehydrated potatoes
- (D) Peeling Potatoes for Processing
  - (1) Potato chips/wafers
    - (i) Slicing
    - (ii) Drying
    - (iii) Frying
    - (iv) Salting and addition of flavouring materials
    - (v) Packaging and storage
  - (2) French Fries (Frozen Potato Chips)
  - (3) Potato Drying/Dehydration
    - (i) Sun Drying
    - (ii) Solar Drying
    - Solar dehydration of partially cooked potatoes
    - (iii) Dehydrated Diced Potatoes
    - -Flow Sheet for Processing of Dehydrated Diced Potatoes
  - (4) Potato Flour
  - (5) Canned Potatoes
    - Flow Sheet for Processing of Canned Potatoes

DEHYDRATION OF VEGETABLES

- Dehydration of Various Vegetables
- Asparagus
- Beans, Baked
- Beans, Greek
- Beans, Lima
- Beets
• Broccoli
• Brussels Sprouts
• Cabbage
• Carrots
• Cauliflower
• Celery
• Corn, Sweet
• Garlic
• Greens
• Mushrooms
• Onions
• Peas
• Peppers and Pimientos
• Potatoes (Irish or White)
• Potato Granules
• Potato Flakes
• White Potato Flour
• Sauerkraut
• Sweet Potatoes
• Tomatoes

POTATO BASED TEXTURED SNACKS

• Raw Materials
• Potato Flakes
• Methods of Manufacture
• Forming and Frying of Wet Dough
• High shear Dry Extrusion
• Low shear Pellet Extrusion
• Potato Chip Manufacture
• Similar Products Using a Basis Other Than Potatoes

POTATO CHIPS/WAFFERS

• Steps in the Process of Manufacture Employed as Follows
• Process of Manufacture
• Details of Machinery
• Operation
• Plant Economics
• Land & Building
• Plant & Machinery
• Fixed Capital
• Raw Materials
• Total Working Capital/Month
• Total Capital Investment
• Turn Over/Annum

POTATO CHIPS (AUTOMATIC PLANT) WITH IMPORTED MACHINERY

• Packaging Requirements for Fried Potato Chips
• Physico chemical Changes during storage
• Transparent and Opaque Package
• Packaging Materials
• Packaging and Storage studies
• Manufacturing Process
• Treating with chemicals
• Chip Frying
• Batch Frying method
• Method of Batch processing
• Packaging
• Woring of Imported continuous Potato Producing Unit
• Imported Plant & Machinery
• Optional Equipment Available
• Packaging Section
• Investment
• Potato Chips (Imported Plant)

PACKAGING OF SNACK FOODS

• Introduction
• The Product Group
• Packaging Materials for Snack Foods
• Packaging Systems