Seed processing and storage procedures

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Seed Enterprises Management Institute
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Building blocks of a QA system

- **Q-Manual (Level A)**
  Describes the quality system in accordance with the stated quality policy and objectives and the accreditation standard

- **Documented quality system procedures (Standard operation procedures) (Level B)**
  Describes the activities of individual functional units

- **Other quality documents (Work instructions, forms, reports, etc.) (Level C)**
  Consists of detailed work documents
How to prepare SOP’s

- Standard operation procedures shall enable users to perform the work by following the description. The volume and degree of detail should be adapted to the needs of the personnel.

General design

1. Purpose.
2. Scope.
3. Definitions and abbreviations.
4. Related documents and references
5. Responsibilities
6. Process description
7. Records

- The same structure may be followed for technical and non-technical procedures.
How to prepare flow charts

Boxes used for flow chart:

- **Start/End**: To indicate start and end of process
- **Process**: An activity with an input and an output
- **Subprocess**: An activity that can be represented in a flow chart on its own
- **Decision**: A process with two possible outcomes, i.e. Yes or No
- **Document**: An information and its medium that results from or supplements a process
  
  To indicate the direction and the sequence and relation between processes
Checks needed at every process

- Analysis of Product Integrity and Control Concerns (*identification of potential risk*).
- Determine Control Points (*Points to control the potential risk*).
- Establish Preventative Measures (*activities to manage the risk*).
- Establish Monitoring Procedures (*verification of implementation actions*).
- Establish Corrective Measures (*activities to address NCs*).
- Establish Verification Procedures (*to verify compliance*)
- Establish Record Keeping and Documentation Procedures.
Seed processing

Seed processing is that segment of the seed industry responsible for upgrading seed, improving planting condition of seed, and applying chemical protectants to the seed.

- Make possible more uniform planting rates by proper sizing.
- Improve seed marketing by improving seed quality
- Prevent spread of weed seed.
- Prevent crops from disease by applying chemical protectants.
- Reduces seed losses by drying.
- Facilitate uniform marketing by providing storage from harvest time until the seed is needed for planting.
Seed Intake registration

- Notification to receive seed.
- Verification of notice.
- Seed consignment details.
- Acceptance of seed
- Entries into registers
Seed handling

- Consider handling systems
  - Conveyors
  - Augurs
  - Holding containers
  - Suction
  - Hydraulic
- Check on conveyance
- Other handling materials
- Cleanliness
- Calibration
- Seed separation to avoid mixtures
Seed drying

- Type of seed
- Size of consignment
- Initial moisture content
- Packaging materials
- Drying method
- Drying capacity
- Drying speed
Seed cleaning & Seed grading

Removal of foreign impurities & sizing of seed to grades

- Manual cleaning
- Machine types
  - Pneumatic - sort by weight
  - Cleaning column - sort by aerodynamic properties
  - Gravity separator - sort by density
  - Electromagnetic - sort by shape and surface texture
  - Indented cylinder

- Calibration
- Maintenance
Assessment of quality

- Sampling
- Parameter checks
- Standard measure
- Decision making
Seed treatment

If a requirement

- Carry out treatment
- Choose type
- Chemical (AI)
- Chemical Approval status
- Concentration
- chemical coverage on seed
Seed packaging

- Type of packaging
- Size
- Consumer preference
- Type of seed
Seed sampling

- Sampling request
- Request evaluation/document verification
- Location
- Size and packaging
- Equipment to use
- Accessibility of containers
- Sample handling
- Documentation and sample dispatch.
Undesirable materials removed during processing of seed
Seed storage

Storage may be defined as the preservation of viable seeds from the time of harvest until they are required for sowing.

- Type of seed
- Seed quality factors
  - Seed maturity,
  - Freedom from mechanical damage,
  - Freedom from physiological deterioration,
  - Freedom from fungi and insects,
  - Initial viability.
Packaging material

- Materials freely permeable to moisture and gases
- Materials completely impermeable, when sealed, to moisture and gases
- Materials resistant, but not completely impermeable, to moisture
Storage contd

- Seed moisture content
- Storage method
- Store capacity and design
Thank you
Exercise: Seed processing SOP & flowchart Preparation

- Seed Intake registration
- Seed handling
- Seed drying
- Seed cleaning
- Seed grading
- Assessment of quality
- Seed treatment
- Seed sampling
- Seed packaging
- Labelling
Exercise: Seed storage SOP & Flowchart Preparation

- Type of seed
- Seed quality factors
- Storage conditions
- Packaging material
- Seed moisture content
- Storage method
- Store capacity and design