# Quality assurance for seed companies & exercise.

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# What is Quality?

The extent to which requirements
or expectations are met:

- requirements may be stated or implied
- quality: in products and services

# What is Quality Management?

Definition

"Activities aimed at directing and running (controlling) an organisation regarding quality

Quality plan

- **Explains how an organisation intends to apply the quality policy, to**
- **achieve the quality objectives and to meet quality system requirements**

Quality control

- **Set of activities or techniques to ensure that quality requirements are**
- **being met**

Quality improvement

- **Enhance the capability to fulfil quality requirements**

Quality assurance

- **Set of activities to demonstrate that an organisation meets**
- **all quality requirements**"

# Why do we need quality assurance?

- The bottom line!!

  Our customers must have confidence

  in the quality of our product/service which must be:
  - **- Reliable**
  - **- Relevant**
  - **- Reproducible**

# Why do we need quality assurance?

How do we get our customers to trust us?

- We must have good test methods
- We must have laboratories which apply

these test methods correctly and uniform

# How to assure Quality?

- Document control
- Proficiency testing
- Review of tenders, requests and contracts
- Audits
- Review by the management

# 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

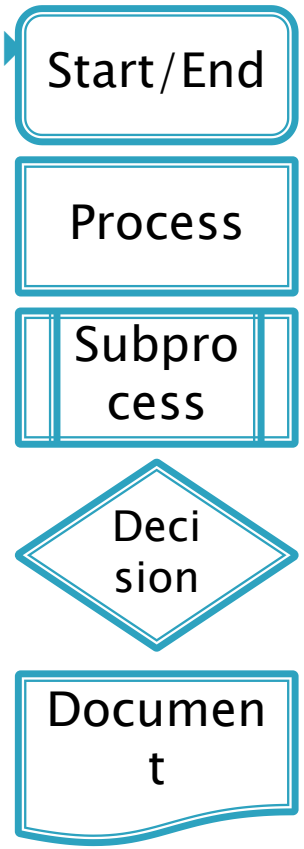
- Standard operation procedures shall enable users to perform the work by following the description.
The volume and degree of detail should be adapted to the needs of the personnel.
General design
  - 1. Purpose.
  - 2. Scope.
  - 3. Definitions and abbreviations.
  - 4. Related documents and references
  - 5. Responsibilities
  - 6. Process description
  - 7. Records
- The same structure may be followed for technical and non-technical procedures.

# How to prepare flow charts

- Flow charts are helpful to visualise a process.
- Preferably, a very limited number of symbols is used
- to ensure that it is easily understood. Responsibilities
- might be assigned as well

# How to prepare flow charts

## Boxes used for flow chart:




To indicate start and end of process

An activity with an input and an output

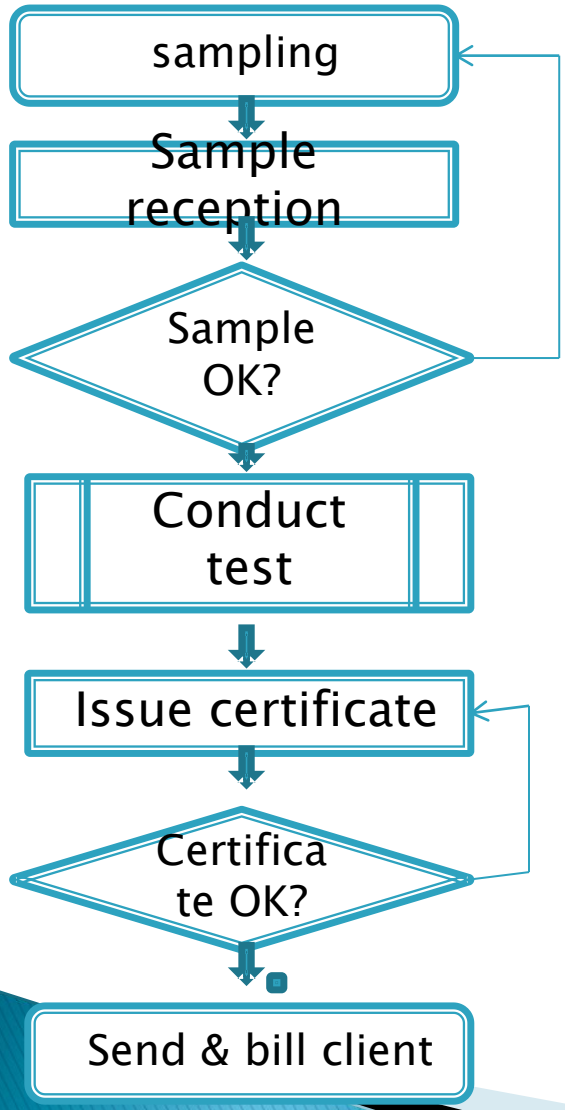
An activity that can be represented in a flow chart on its own

A process with two possible outcomes, i.e. Yes or No

An information and its medium that results from or supplements a process

To indicate the direction and the sequence and relation between processes

# Example process flow chart




Sample report — sampler

clerk

clerk

Working card — Analyst

Certificate — clerk

Invoice — clerk

# Standard Operation Procedure

- K – keep
- I – it
- S – short
- S – simple

# QA in seed testing

- 1.Seed sampling
- 2. Sample reception
- 3. Moisture
- 4. Purity
- 5. Germination
- 6. Storage of samples

7.Integrity of data

8. Training of staff

9. Equipment

10.Record keeping

11.Verification of the system

# Seed sampling

- System for approval of lot identification
- Monitoring the uniformity of the seed lot and refuse of
- sampling and testing if doubt exist concerning uniformity
- Authorization of samplers
- Training program
- Up to date lists of samplers
- Monitoring the samplers
- Describe procedure cancellation authorization of samplers

# Sample reception

- Unique sample number
- Up dated list of qualified seed samplers for ISTA samples
- Procedure for unusual conditions of samples
- Logbook to fill out non conforming samples
- Training of staff
- Record keeping

# Purity

- Balances, Blowers
- Dividers, Seed counter
- Training of staff
- Personal logbook
- Seed collection
- Approval system/Examination for analysts
- Procedure performance of analysts
- Record keeping

# Germination

- Temperature control incubators
- Use of ISTA Rules and handbook
- Training of staff
- Approval system/Examination for analysts
- Maintenance of equipment
- Record keeping

# Storage of samples

- At least 1 year after issuing an ISTA Certificate
- Temperature and humidity control of storage facilities
- Pest control
- Dispatch of samples
- Who is responsible for the storage section

# Integrity of data

- Storage and protection of data
- Information of data to clients
- Access for data (Password computer)
- Only issue certificates on species which are listed in the Rules
- And for which the lab is accredited
- Signature of responsible person

# Training of staff

- Matrix where competence is layed down
- Inventory of training (annual performance talk)
- Personal logbook of training of each analyst
- Layed down limits of responsibilities of staff
- Up to date rules, handbooks, manuals, instructions and reference data
- Replacement
- Maintenance of experience

# Equipment

- The laboratory must be fit for the purpose of seed testing
- A full range of equipment for the test being done should be
- provided
- The equipment must be maintained in working order and
- where necessary, regularly calibrated
- Registrations of calibration must be kept
- Entrance control new equipment

# Records

- Up to date records of staff and training records
- Keep records for at least 6 years
- Use inerasable pen
- Correction of mistakes in records must not be
- erased but crossed out
- Calculations must be checked systematic

# END

Thank you

# Exercise: Planting SOP & flowchart

- Time of planting,
- Seed Rate,
- Method of sowing,
- Depth of sowing,
- Verification of seed type,
- Seed treatment,
- Machine effectiveness,
- Machine cleaning,
- Seed packaging and labels preservation

# Exercise:Crop husbandry flowcart

- Weeding
- Disease and pest control
- Nutrition
- Rouging
- Detasselling
- Supplemental pollination
- Irrigation
- Notification for official inspection
- Crop Compliance checks
- Inspection advice implementation

# Exercise: Harvest and Post Harvest flowchart

- Time of harvest
- Harvesting mode (machine or hand)
- Separation of males and females (hybrids)
- Identification of harvested raw seed
- Shelling
- Packaging and marking
- Transportation
- Separation from admixture
- Samples for post harvest tests
- Post harvest soil monitoring

# Exercise: Seed processing flowchart

- Seed Intake registration
- Seed handling
- Seed drying
- Seed cleaning
- Seed grading
- Assessment of quality
- Seed treatment
- Seed sampling
- Seed packaging
- labelling