



- By Simeon Kibet

SEMIS - UON



Contents

2

1. Seed Crop Inspection Processes
2. Seed Certification Processes For Different Countries

SEMMIS - DON



SEED CROP INSPECTION PROCESSES

3

Presented at:

The Seed Production Field Diagnostics Course, SEMIS, University of Nairobi, 22nd – 27th
June, 2015

Simeon Kibet,
General manager, Quality Assurance
Kenya Plant Health Inspectorate Service
(www.kephis.org)

Objectives of Crop Inspection



1. Ensure that seed sold to farmers meets minimum set quality standards so as to maximize their crop production.
2. Promote seed trade (local and international) by complying with set regulations/agreements



Seed Systems

5

- Seed is the repository of the genetic potential of crop species and their varieties resulting from the continuous improvement and selection over time.
- It is one of the most crucial elements in the livelihoods of agricultural communities.
- The potential benefits of seed to crop productivity and food security can be enormous.
- Food security is heavily dependent on the seed security of the farming community.

Seed Systems

6

Different Seed Systems exist:

- Formal and Informal
- Voluntary and Compulsory certification

The principles of inspection are the same for different countries.

- It is the approach that varies

Seed Inspection in Different Countries



7

Examples



Canadian Seed Crop Inspection

8

- The Canadian Food Inspection Agency (CFIA) is Canada's seed certification authority and administers the *Seeds Act* and the *Seeds Regulations*.
- The CFIA is the National Designated Authority for the implementation of the Organisation for Economic Co-operation and Development (OECD) Seed Schemes in Canada.
- The Canadian Seed Growers' Association (CSGA) is identified in the *Seeds Regulations* as the seed crop certification authority for all crop kinds grown in Canada **except seed potatoes**.

Canadian Food Inspection Agency



(CFIA)

9

- Canada's national seed authority involved in activities in support of seed crop inspection and certification, including **licensing and oversight of private sector** delivery of seed crop inspection.
- As part of the process of authorization, CFIA has allowed formation of Authorized Seed Crop Inspection Services (ASCIS).

Authorized Seed Crop Inspection Services (ASCIS)



10

- This initiative focuses on the direct delivery of seed crop inspection by the private sector.
- Licensed Seed Crop Inspectors (LSCI) appointed to provide direct delivery of inspection.
- Before licensing, CFIA hosts training sessions (combination of classroom and practical field training) for individuals who want to be a LSCI.
- This process is under initial stages of implementation

Authorized Seed Crop Inspection Services (ASCIS)



11

- The CFIA will maintain an oversight and audit role to ensure the effectiveness of the overall program.
- This initiative does not apply to seed potatoes.
- Five percent of pedigreed seed is already inspected through alternative service delivery in Canada, with the remainder carried out by the CFIA.

Authorized Seed Crop Inspection Services (ASCIS)



12

- Once fully implemented, most growers of seed will obtain crop inspection services for the purposes of seed certification from authorized seed crop inspection service providers.
- The CFIA may, on an exceptional basis only, be required to continue to provide for delivery of seed crop inspections in those cases where an authorized service provider is not available or where it is not possible to use private inspectors.



Seed Crop Inspection

13

- Seed crop inspection primarily involves confirming that seed production procedures for seed purity and quality are met.
- It also helps verify that the seed crop is free from prohibited noxious weeds.
- It is the largest component of the seed certification system.



Inspection Procedure

14

- The seed crop inspector (CFIA inspector or LSCI) must be certified or licensed by the CFIA as evidence of their proficiency in seed crop inspection.
- Seed crop inspectors must pass written and practical evaluations prior to certification or licensing by the CFIA to demonstrate their competence to inspect pedigreed seed crops.

Inspection Procedure

15

Application for Seeds Crop Inspection

- The grower must indicate the name of the ASCIS that will be responsible for the inspection on the application for seed crop inspection submitted to the CSGA.
- If the grower had an inspection the previous year, the application form will be sent to the grower automatically by the CSGA.

Inspection Procedure

16

Application for Seeds Crop Inspection

- A first time or returning seed grower should request an application from the CSGA.
- The completed application form contains the information relevant to the inspection and verification of the crop's varietal purity.
- All accepted applicants become members of the CSGA.
- Applications for assigned crops are made in the name of the grower of the crop



Inspection Procedure

17

Application for Seeds Crop Inspection

- Applications for crop inspection of Breeder status plots should be applied for under the name of the plant breeder or breeding institution.
- Fees for crop inspections conducted by an LSCI are collected by the ASCIS to which the LSCI reports. Crop inspections conducted by CFIA inspectors are charged to the CSGA.
- The CSGA reviews the application and forwards the inspection assignment to the appropriate ASCIS or CFIA office to assign a seed crop inspector to conduct the inspection.

Inspection Procedure

18

Crop inspection involves the performance of three major tasks:

- identification of crops;
- crop impurity counts; and
- checking isolation distances.



Inspection Procedure

19

Standard inspections required for the crop to be certified as pedigreed seed;

- land use inspections; and
- re-inspections to verify border removal.

Other inspections may be requested to meet a specific need:

- second inspections requested by the grower; and
- any other crop inspection not previously described.

Inspection Procedure

20

Report of Seed Crop Inspection

- The Report of Seed Crop Inspection should be completed during or immediately after the inspection.
- Reports of Seed Crop Inspection completed by LSCI should be reviewed by the Lead Inspector of the ASCIS to which the LSCI reports prior to submission to the CSGA.

Inspection Procedure

21

Report of Seed Crop Inspection

- The grower is provided a copy of the report by the ASCIS after verification.
- The ASCIS should maintain any originals or copies of rough notes taken by the seed crop inspector.
- Completed and reviewed Reports of Seed Crop Inspection must be submitted to the CSGA within two business days of the inspection.

Inspection Procedure

22

Report of Seed Crop Inspection

- For crops which require more than one inspection during the growing season, the seed crop inspector should only submit the completed report after the final inspection is completed unless issues are identified during the first inspection.
- In this case the seed crop inspector must make the CSGA aware of the issue by submitting the Report of Seed Crop Inspection immediately following the first inspection.

Inspection Procedure

23

- LSCI and CFIA Official Inspectors must keep a record of the time, date and method used to provide the completed Report of Seed Crop Inspection to the grower.
- The seed crop inspector may wish to communicate any observations made during the inspection that may cause the CSGA to decline the crop or that may require remedial action on the part of the grower in order to obtain a crop certificate.



Inspection Procedure

24

Inspection of Varieties Not Registered in Canada

- Varieties that are not registered in Canada should not be inspected unless the seed crop inspector has a Description of Variety (DoV) for the variety.
- If the DoV is not readily available through the CSGA, it is the responsibility of the grower/applicant to make it available in one of Canada's two official languages.



Inspection Procedure

25

Inspection of Varieties Not Registered in Canada

- If it is not at all possible to obtain the DoV, the seed crop inspector should advise the grower/applicant that the crop could be declined pedigreed status. The seed crop inspector may perform the inspection based on the uniformity of the crop, providing that it is noted on the Report of Seed Crop Inspection that no DoV was available.



South Africa Seed Inspection

26

National Seed Certification

- South African National Seed Organization (SANSOR) is the designated authority to manage and execute all functions pertaining to seed certification on behalf of the government.
- This includes not only the National Seed Certification Scheme, but all international seed schemes such as AOSCA, OECD and SADC.
- SANSOR incorporates all noteworthy role players in the seed industry



South Africa Seed Inspection

27

- This is achieved by means of a core administrative staff and the use of more than 1 60 private seed inspectors who are trained, examined and authorized to conduct specific functions.
- Seed Certification is voluntary in South Africa, except for specific varieties.
- SANSOR issues Certificates, seals and labels as a guarantee of varietal purity and seed quality.



South Africa Seed Inspection

28

- The inspection process exercises control from breeder seed, through Pre-Basic to Basic and finally to Certified seed and aims specifically to guarantee varietal purity, as well as seed with good physical qualities.
- SANSOR will only certify seed lots produced on fields registered with SANSOR.
- During the registration process the origin of the seed is verified.



South Africa Seed Inspection

29

- Field inspections are conducted by trained and authorized seed inspectors.
- After harvest, processing and packaging the seed is sampled and tested by registered seed testing laboratories for germination and physical purity, as well as for varietal purity and identity through post control grow-outs done by government.



South Africa Seed Inspection

30

Other seed related functions of SANSOR include:

- Training of seed inspectors by presenting courses, workshops and seminars.
- Assistance with the maintenance of national variety lists ;
- Assistance with the development of national variety lists in the case of new crops, as well as the collection of seed samples and variety descriptions;



South Africa Seed Inspection

31

- Arrangement for the execution of post – control tests by the Registrar of Plant Improvement with the aim of monitoring the efficiency of seed certification for maintaining varietal purity;
- Collection, codification and submission of samples from all seed units under certification for post control tests by the Registrar of Plant Improvement;
- Promotion of liaison between private laboratories and the Official Seed Testing Laboratory.



END

□ THANK YOU

SEED CERTIFICATION PROCESSES FOR DIFFERENT COUNTRIES

SEMIS INTERNATIONAL TRAINING COURSE AT
CAVS

By SIMEON KIBET

SEED CERTIFICATION PROCESSES

- Formal
- Intermediate
- informal

SEMIS - UON

Informal seed certification

- ▶ Farmer saved seeds
- ▶ Farmer exchange
- ▶ Barter trade
- ▶ Local markets
- ▶ Seeds not certified

Note; This is a farmer and community based seed system

Intermediate Seed Certification

Done by

- ▶ NGO's
- ▶ Farmers Associations through local Seed Business development.
- ▶ Has a short value chain
- ▶ Deals with locally important food crops
- ▶ Certification ascertained through truthful labelling and QDS(Quality Declared Seeds)

Formal seed certification

Involves a complete seed value chain which include;

- ▶ Genetic Resource management
- ▶ Variety Development
- ▶ Early generation production
- ▶ Seed Multiplication
- ▶ Dissemination
- ▶ Consumption of seed

Cont'

Its is composed of;

- ▶ National Public Companies e.g Kenya seed
- ▶ Private Companies e.g Kenya Highlands Seeds
- ▶ Multinational Companies e.g Monsanto

It is characterised by a Closed value chain

In Kenya we have a total of 133 seed companies registered.

Cont'

Advantages of Formal Seed system include

- ▶ Assured seed quality due to laid down regulations
- ▶ Traceability thus sustainability and reliability
- ▶ Regional Marketing due to international and Regional standardized quality
- ▶ Access to different Varieties from different regions

Note– In Kenya only formal seed system is recognized by Law

SEED CERTIFICATION In Kenya

- ▶ Seed is the basic input that sets the potential for crop yield hence requires defined processes in its production, processing and marketing
- ▶ Seed Quality Assurance Services operate within the guidelines and procedures stipulated in [The Seeds and Plant Varieties Act \(Cap 326\)](#) of the laws of Kenya .
- ▶ Inspections (both in the field and factory processing) is undertaken as per the OECD set standards. Laboratory seed tests/analysis are carried out as per the ISTA standards/rules

SEED CERTIFICATION

- Legally sanctioned system for quality control for seed multiplication and production.
- Aims to control the varietal identity and purity throughout the seed chain
- Eligible variety for certification must be officially released varieties in case of schedule II crops
- In Kenya seed companies and growers requires registration

Quantity Of Seed Certified

- ▶ The average quantity of seed certified annually is about 37509 tons(2012–2013 annual report)
- ▶ About 89% of certified seed are locally produced and the remaining 11% imported

Seed Certification Process

Steps in seed certification

1. Registration of seed crop and Verification of seed source
2. Field inspection
3. Seed processing inspection and sampling
4. Seed testing
5. Labelling and sealing
6. Post control

Registration of seed crop

- ❖ Submission of application for field inspection of seed crop on prescribed form Seed Regulation (SR) 5
- ❖ Verification of seed of seed source
 - ✓ Prove of origin

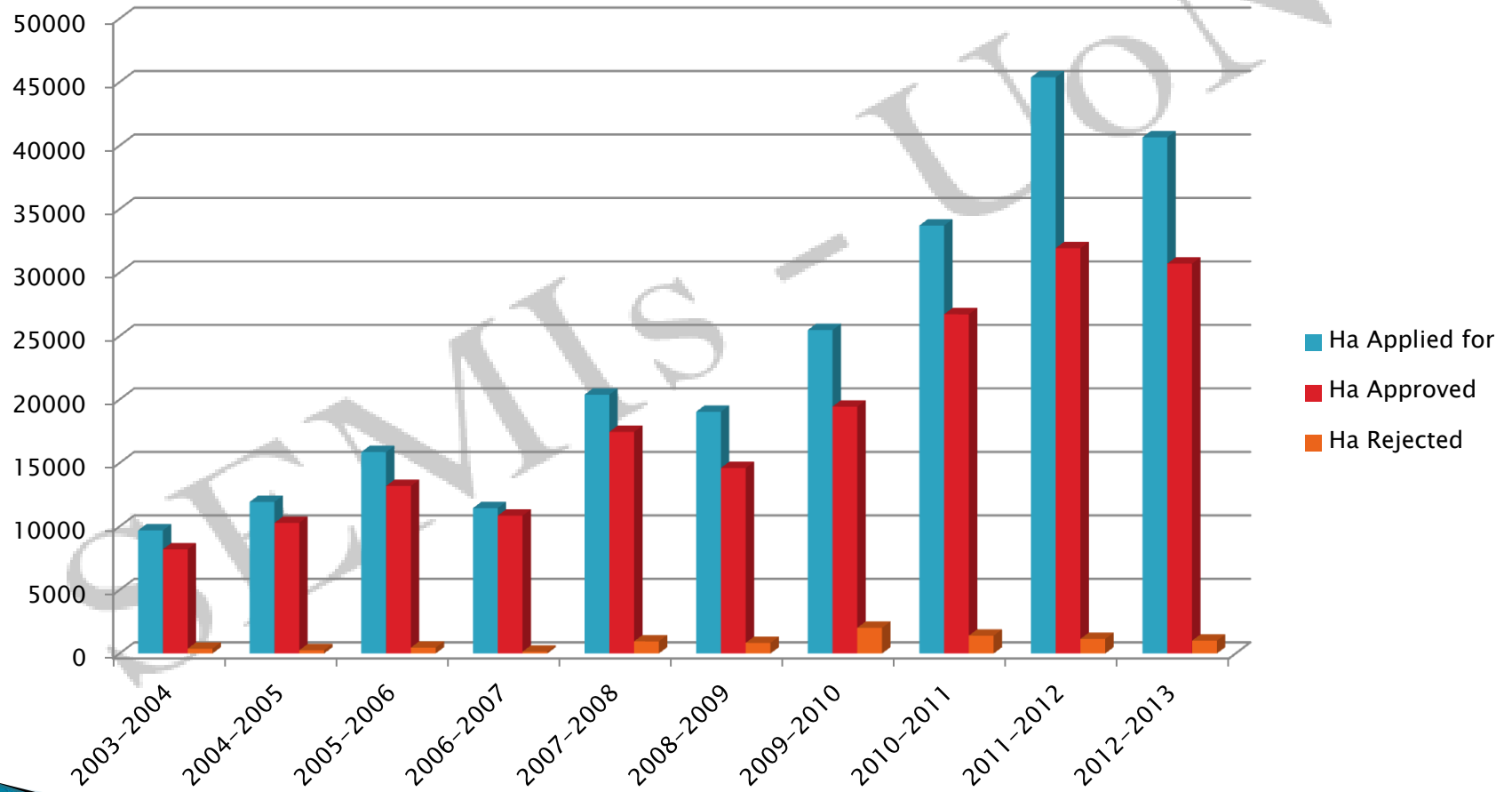
Field inspection

Objective: To verify factors that can cause irreversible damage to the genetic purity or seed health. .

- Confirmation of acreage given in the report
- Cropping history of the farm
- Isolation distance
- Varietal purity
- Diseases



Field inspections of seed cont'd



Seed processing inspection and sampling

This involves:

- ❖ **The separation of desired, good, healthy seed from inferior seed and impurities**
- ❖ **Dividing good seeds into uniform grades of size and shape**
- ❖ **Treating seed with chemical Protectants, colorants and or growth promoters**

Seed processing inspection and sampling continued

- ❖ Sampling processed seed lot after dressing for quality testing in the seed laboratory



Seed testing

Conducted to determine seed's

- ❖ Physical purity
- ❖ Germination capacity
- ❖ Moisture content
- ❖ Health status of seed lots
- ❖ Vigor

Seed must meet the minimum purity and germination standards set in CAP 326



Seed quality testing Cont'

- ▶ On average the seed laboratory tests 3143 samples annually
- ▶ The seed samples that meet quality standards average 2648 and that fail 495 (2012–2013)
- ▶ Failed seed lots should never be offered for sale

Post control

- ❖ Ascertain that the scheme is working satisfactory
- ❖ Determine if varietal characteristics remain unchanged in the multiplication process (Varietal identity and purity)



Failed Seed lot in post control - Sorghum variety Gadam



Post control cont'd



Fig 6: round fruits of the off-types on the left, fruit of Rio grande on the right



Fig 7: Elliptic shape of Rio grande (left) compared with circular shape of off-type (right) in both photos

Seed Importation and Exportation

Requirements

In order to import or export seed into Kenya one must:-

1. Be a **registered** seed merchant.
2. **Notice to import/export** seed by filling form **SR 14** provided by KEPHIS.
3. Obtain a **Phytosanitary Certificate** or a **Plant Import Permit** (PIP) from KEPHIS or the corresponding Seed Certifying body in the country of origin for imports.
4. Obtain an international orange (International Seed Testing Association (**ISTA**) certificate from the official seed tester (KEPHIS) or the corresponding seed certifying body in the country of origin for imports. This will accompany the seeds.
5. **Seed is inspected** by KEPHIS at the port of exit/entry.

REGISTRATION AS A SEED STOCKIST

- Duly fill application forms (SR 12) and return them to the KEPHIS regional office.
- Pay Kshs. 1000/= annual registration fees per application.

SEMMIS - UON

REGISTRATION AS A SEED STOCKIST

- ▶ KEPHIS seed inspectors will then inspect the premises of the applicant to establish whether they:–
 - Have adequate storage capacity for seed quantities that one may desire to store.
 - Is clean, vermin proof, and waterproof.
 - Has enough lighting and is well ventilated.
 - Have suitable display (e.g. not in direct sunlight)

Schedule VI:

- ▶ Form (SR.1) – Application for registration as seed grower
- ▶ Form (SR.2) – Certification of registration as seed flower
- ▶ Form (SR.3) – Application for registration as seed merchant
- ▶ Form (SR.4) – Application for registration as seed merchant / processor
- ▶ Form (SR.5) – Application for field inspection of a seed crop
- ▶ Form (SR.6) – Field Inspection result
- ▶ Form (SR.7) – Seeds Transport Order

Schedule VI: Cont

- ▶ Form (SR.8) – Work order
- ▶ Form (SR.9) – Request for testing a seed sample
- ▶ Form (SR.10) – Seed Testing Certificate
- ▶ Form (SR.11) – Stop-Sale-Order
- ▶ Form (SR.12) – Application for seed sellers licence
- ▶ Form (SR.13) – Seed Sellers Licence
- ▶ Form (SR.14) – Notice to Import / Export

Thank you

SEMIS UON