THE ROLE OF PHYTOSANITARY SEED QUALITY REGULATION ON THE SEED VALUE CHAINS

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Introduction

- **Phytosanitary** - relating to the health of plants
- **seed lot** – An identifiable quantity of seed of one variety, of known origin and history, and controlled under one reference number in a seed quality assurance scheme.
- **certified seed** - Seed of a prescribed standard of quality produced under a controlled multiplication scheme either from basic seed or from a previous generation of certified seed.
- **seed** – is the part of the plant intended for planting and not for consumption or processing.
- Any **propagative part** of a plant, including tubers, bulbs, etc., esp. as preserved for growing a new crop.
Seed is the part of the plant intended to be used for propagation and includes seed, seedling, cutting, corm, bulb, layer, scion, root, runner, split, set, stump, stock, tuber, sucker.

Conditioning pertains to all procedures (drying, cleaning, treating, bagging, storage, labeling, etc.) carried out on seeds after harvesting.

Value chains encompass the full range of activities and services required to bring a product or service from its conception to sale in its final markets, whether local, national, regional or global.

Agricultural value chain refers to the whole range of goods and services necessary for an agricultural product to move from the farm to the final customer or consumer.
The seed sector value chain can be described by five basic links: plant breeders; seed growers; seed conditioners; seed distributors and farm retailers; and farmers (seed end users). In case of seed exports, seed conditioners/exporters would ship to importers and foreign distributors to ultimately reach the end users in foreign markets.

(seed bank, NPPO, researchers)
Why focus on seed

- **Seed** is a *living product* that must be grown, harvested and processed correctly to maximize its *viability* and subsequent crop productivity.
- Is the *starting point* for any crop production
- Use of *poor seeds* or infected seeds have far reaching ramifications
- seed sector is the "starting point" for many sectors of a country's agriculture industry and food production
- access of farmers to quality seed is crucial for *crop improvement* programs
- seed is the *foundation* for much of agriculture. For the *yield potential* of any variety to be realized, good quality seed must be sown.
- Dealing with agricultural materials presents risks – pest pathway
seed production systems

Formal seed production systems
- public sector seed organisations
- private sector commercial seed companies
- community-oriented seed organisations e.g. Cooperatives

Traditional seed systems or informal seed systems
- e.g. retaining seed on-farm from previous harvests,
- farmer-to-farmer seed exchange.

✓ Accounts for about 90–95%, for smallholder farmers' seed demands.
✓ Due to lack of control or facilities, it is not always possible to produce high quality seeds and seed that is produced and distributed in this way is often of uncertain quality.
For seed wholesomeness (quality seed)

- Phytosanitary measures
- Seed quality measures

**Phytosanitary issues**
- deals with issues of seed health - freedom from trans-boundary pests
- application of phytosanitary measures to address pest risk
- Is undertaken by NPPO (seed certification, seed import regulations)
- Protection of plant breeders rights [Seeds and Plant Varieties Act (Chapter 326)]

**Seed quality measures**
- Several international organizations and industry associations e.g. International Seed Testing Association
- have developed widely recognized tests, guidelines and standards
- ensuring the quality of seeds (for purity, germination capacity, etc.)
Significance of seed quality regulation

• **To address the risks** associated with microorganisms in seeds. Seeds can be asymptomatic or have latent infections.

• **Risk associated with import.** Seed health testing helps in checking the transboundary introduction of alien species of plant pests which once introduced may be devastating or are difficult to get rid off.

• **Regulation is done to ensure that there is reliable information as to the nature, condition and quality of seeds intended for sale.**

• **Seed health testing helps in anticipating the effective disease management choices and thus helps in reducing the cost of production.**
Significance of seed quality regulation cont’d

• Preventing sale of seed which are not pure or cannot perform well in the field.
• Seed health testing is one of the important tools for monitoring seed quality and ensuring that the best quality seeds are produced and sold to farmers.
• Meet consumer demands for specified qualities.
• Provide basis for healthy competition among seed traders.
• Ensuring exchange of clean germplasm (about 30% of the world’s food production is derived from crops originating in other countries).
Basic parameters to seed quality attributes

- **Physical qualities** of the seed in the specific seed lot
  - Minimum of damaged seed, minimal weed seed or inert matter, near uniform seed size
- **Physiological qualities** which refers to aspects of performance of the seed
  - High germination and vigour
- **Genetic quality** which relates to specific genetic characteristics of seed variety
  - Seed of the same variety, high yielding ability
- **Seed health** which refers to the absence of diseases and pests within a seed lot
  - Seed health refers to the presence or absence of disease-causing organisms
Int’l organizations that handles/regulates seed issues

- **International Seed Testing Association (ISTA)** --- provides rules and procedures for seed quality testing
- **Organization for Economic Cooperation and development (OECD)** --- gives technical guidelines on field certification standards
- **International union for Protection of New Varieties of Plant (UPOV)** --- deals with plant breeders right
- **International Seed Federations (ISF)** --- encompasses private industry representatives of breeders and seed dealers
- **Association of Official Seed Certifying Agencies (AOSCA)** --- facilitates movement of seed or plant products though coordination of certification agencies.
Role of phytosanitary seed quality regulation on the seed value chains summary

- Facilitates and oversees the process of production of quality seed
- Assures that all seed produced in the country is certified
- Offers quality assurance and quality checks at every point of seed production and seed value chain by being involved in the seed production process – NPTs; DUS; Field trials; Plant Breeders Rights; Official release of Seeds
- Facilitates the import and export of all seed and assures the quality of the seed in line with National & Int’l regulations/requirements – CAP 326;ISTA; OECD
- Assures traceability from on-farm seed production to seed merchant/seller
- Ensures rogue seed producers/merchants/sellers are detected and dealt with in line with the Law (CAP 326)
• NPPO oversees all PS and Seed quality standards; Provides certification for all plants, planting material and plant products
• NPPO’s mandate is governed by CAP 324; CAP 326; CAP 325; among other markets standards and requirements
• Others: ISTA; CODEX; OECD; ISPMs
• Decision making forums/governing bodies: Ministry of Agric; Cabinet Secretary (or his appointee); Act of Parliament/ Gazette notice; National Seed Policy; STAK; IPPC

‘seed quality assurance needs cooperation among the various actors and agencies charged with seed quality should support other areas of the seed industry’
Thank you