

Seed Certification and its Significance

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ABSTRACT

Seed certification assures that agricultural seeds fulfil demanding requirements for genetic purity, physical purity and overall quality seed material. The key goals are to give superior quality seed material to farmers that have to be true to type, uncontaminated, and able to grow vigorous and healthy crops. By means of seed certification, seeds are categorized into various classes in order to ensure the genetic integrity, quality, and productivity of different crop varieties. Several certification agencies such as NSC, CSC, NSP, SSC, SIDP and NSDC involved in seed certification to maintain the purity as well as quality seeds for research, multiplication and distribution even OECD also.

INTRODUCTION

Seed Certification

Seed certification guarantee that seeds used for planting fulfil specific requirements for genetic purity, physical condition, and general quality. Delivering superior seeds to farmers and growers will enable them to develop crops that are dependable, healthy, and yield a lot. The aim of seed certification is to guarantee that

seeds fulfil particular requirements for quality, ultimately provides the benefit to growers, customers, and the agriculture sector overall (Young, 1960). Seeds providing to farmers that are true to type, contaminant-free, capable of producing vigorous and healthy crops are the main goals of seed certification and global agricultural supply chain. Certification of seeds should be done by the Seed Certification

Agency which has got registration under year 1966 Section 8 of the Seeds Act (Joshi, *et al.*, 2020).

Objectives of seed certification

The goals of seed certification are to guarantee that seeds fulfil particular requirements for quality and dependability (Joshi *et al.*, 2020). The objectives of seed certification are:

- Ensure genetic purity to that seeds are free from genetic contamination and genuine to the variety that has been labelled. Improve seed quality to guarantee that seeds meet strict requirements for general health, germination rate, and physical purity. Encourage the use of sustainable agriculture to promote the adoption of seeds that are hardy against environmental challenges and appropriate for the growing environment in the area (Joshi *et al.*, 2020).
- The process of identifying and classifying of recently released elite varieties, as well as their rapid growth under appropriate and widely recognized nomenclature.
- To establish uniform standards for seed quality in various markets and geographical areas.

The basics of seed certification

- **Genetic purity:** Assuring that the seeds adhere to the varieties genetic traits or true to type, preventing contamination from different species or kinds, field standards contains instructions for seed crop planting, upkeep, and inspection (Singh, 2018).
- **Seed Standards:** Relates to the physical and physiological quality of the seeds, such as purity, germination, and moisture content.

- **Labelling:** Giving precise details on the variety, quality, and place of origin of the seed.

Organisation of Seed Certification:

A systematic system is used in the organization of seed certification to guarantee that seeds fulfil particular quality requirements prior to being sold. Usually, this system consists of the following important parts:

- **Certifying Agencies:** These could be non-governmental or governmental organizations in charge of managing the certification procedure (Misra *et al.*, 2023; Singh, 2018).
- **Standards and Regulations:** Specified requirements that seeds must fulfil, such as being free of illnesses, having a high germination rate, and being genetically pure.
- **Inspection and Testing:** Methods used to confirm adherence to certification requirements, including laboratory testing, field inspections, and sampling. Labelling and Documentation is to guarantee traceability and transparency, certified seeds are labelled with comprehensive information (Misra *et al.*, 2023).

Seed Certification Agency

The quality and genetic purity of seeds supplied to farmers are the responsibility of seed certification organizations. By adhering to stringent procedures and criteria, these organizations maintain high standards for agricultural output when certifying seeds (Agarwal, 2018).

Seed certification agencies have been assigned with numerous important duties to ensure the quality and reliability of seeds in agriculture. Various seed certification agencies have important role in quality assurance (figure 1).



Figure 1: Seed Certification Agencies

- **Establishing and Enforcing Standards:** Agencies create and uphold standards related to seed health, moisture content, germination rates and purity. These instructions are supported by best practices from the industry and scientific research.
- **Field Supervision:** From the multiplication of breeder seeds to the delivery of certified seeds, agencies oversee every step of the seed production process (Agarwal, 2018).
- **Seed Inspection and Testing:** Verifying through field inspections that seed crops are cultivated and managed in compliance with certification guidelines. This involves verifying field history, crop rotation techniques, and isolation distances (Parimala *et al.*, 2023). Laboratory testing is done to determine the presence of diseases or pests, moisture content, germination rates, genetic purity, and physical purity.
- **Certification and Labelling:** Seed lots that fulfil the requirements for certification. This entails providing certification labels certifying that the seed batch has completed all necessary inspections and testing.
- **Assurance and control of quality:** Implementing and keeping up quality management systems to guarantee consistent quality of certified seeds and to

continuously enhance the certification procedure.

- **Expanding Up the Market:** Facilitating the trading of certified seeds internationally by guaranteeing adherence to global norms and phytosanitary laws and assisting in the creation of new markets for certified seeds by educating farmers and consumers about the advantages of certification.

Seed production organisation

In India, there are two categories of public sector/government organizations in charge of seed production and certification. The first is the National Seed Corporation, which is in charge of the entire nation. The second forms of organisation are State Seed Corporation and State seed corporation agencies that have state wise responsibilities (Singh, 2018).

National Seed Corporation (NSC)

The present functions of NSC are foundation seed production and supply, encourage development of seed industries in India. Offering certification services to states that do not have an independent, established seat certification agency and do not maintain improved seed inventories of improved varieties (Sunda, 2022).

State Seed Certification (SSC)

In order to reduce the workload of NSC and state seed corporations were established. These corporations were motivated by the success of Tarai Development Corporation (TDC) Pantnagar, TDC was launched on 29 June, 1969 with the assistance of World Bank and Government of India. This had virtually taken over the Uttar Pradesh seed market to the point where NSC was no longer needed. The primary focus of the state seed corporations is the production and supply of certified seed. It is expected that the States Seed Corporation would be able to encourage a quicker

expansion of the state sector and operate more efficiently (Singh, 2018; Sunda, 2022).

State Seed Certification Agencies (SSCA)

Since field inspections and seed testing are necessary for seed certification, state seed certification agencies are in charge of supervising seed certification in the relevant states. SSCAs perform different functions including checking and verifying appropriateness seed source used for growing the seed for certification. It carries out the requisite field inspections and seed testing; certify the seeds, suitable for issuing the appropriate tags for both certified and foundation seeds. Guide seed growers on production, processing and distribution of seeds, conducts seed production short courses (Singh, 2018).

Economic Cooperation and Development (OECD) Seed Certification

OECD is an intergovernmental organization and established in 1958. Secretariat at Paris, France provides a multilateral forum to discuss, develop and reform economic and social policies. The Mission of OECD's is to promote for sustainable economic growth and employment, a rising standard of living and trade liberalization. OECD Seed Schemes prescribes a set of Procedures, methods and techniques for monitoring quality seed supply which assures for maintenance and safeguarding of varietal identity as well as purity. Along with India there were 61 countries participating in the OECD Seed Scheme. The OECD council approved the Indian membership for participation in the following six OECD seed schemes from October, 2008, which includes Cereals, Maize, Sorghum, Grasses and legumes, Crucifers and other oil or fibre species and Vegetables (Karnataka State Seed and Organic Certification Agency, 2022-23). Based on the seed purity and quality standards there are

different classes of seeds (figure 2). The difference between certified and truthful labelled seed are presenting in table 1.

Table 1: Difference between Certified and Truthful labelled seed

Particular	Certified Seed	Truthful labelled seed
1. Certification	Voluntary	For notified kind of varieties truthfully labelling is compulsory
2. Applicability	Only for notified kind	Both notified and released varieties
3. Satisfactory and testing	Both minimum field and seed standards	Physical purity and germination
4. Sample taken for seed inspection or quality by	Seed certification Officer, Seed Inspector	Seed Inspector alone

Source:

https://agritech.tnau.ac.in/seed_certification/seed%20tech%20agri%20index/seedmultiplication.html
 Accessed on 18/10/2024

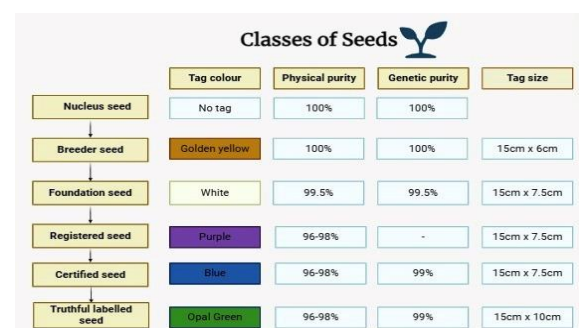


Figure 2: Classification of Scientific Seed

CONCLUSION

Seed certification has an important role to ensuring seed quality and integrity, reduces the risk of seed born diseases, safety to epidemic diseases, seed germination enhancement, increase economic value through marketing, maintenance of seed quality standards, farmers satisfaction with good quality seeds and helps in research and development.

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