



PROCEDURES FOR REGISTRATION OF POTATO VARIETIES IN TANZANIA

NOV 2023

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LIST OF ACRONYMS

AYT	Advanced Yield Trial
DUS	Distinctiveness Uniformity and Stability EAC East African Community
HSRS	Harmonized Seed Regulatory Systems NPT National Performance Trial
NSA	National Seed Authority
NSC	National Seed Committee
NVRC	National Variety Release Committee
QDS	Quality Declared Seed System
SADC	Southern African Development Community SPS Sanitary and Phytosanitary
SQMT	Standardization, Quality Assurance, Metrology and Testing SSC SADC Seed Committee
TASTA	Tanzania Seed Trade Association TC Technical Committee
TOSCI	Tanzania Official Seed Certification Institute
UPOV	The International Union for the Protection of New Varieties of Plants
VCU	Value for Cultivation and Use

ENDORSEMENT OF THE GUIDELINE

This guideline on variety evaluation and registration procedures in Tanzania has been proofread, edited and endorsed by Patrick Ngwediagi, the Director General of the Tanzania Official Seed Certification Institute (TOSCI) and can be referred to as an official guidance on variety release and registration in Tanzania.

CHAPTER ONE: VARIETY REGISTRATION IN TANZANIA

1.1 Introduction

Potato falls under a few fast-growing value chains in the agricultural food subsector. Potato is the fourth most important food and cash crop in Tanzania and offers a lucrative potential to increase food security and enhance alternative sources of rural livelihoods. Cultivation of round potatoes has grown steadily due to a number of factors, including their versatile use and the globalization of the potato industry. The crop's early maturity, high productivity, and less time spent cooking relative to most other crops and readily available markets, have additionally necessitated the need for quality varieties that can increase production and productivity for niche markets. Over the last few years, the so-called potato value chain in Tanzania has taken steps forward, with number of registered potato varieties rising from four in 2014 to sixteen varieties by 2023. These varieties cater for all the domestic and industrial uses. However, the types of varieties developed so far still run short of addressing adequately the diverse requirements of emerging markets. In this regard, widening the gene pool resources would provide more opportunities for farmers to grow varieties that tap into more nuanced market preferences.

1.2 Plant Variety Registration in Tanzania

Tanzania has a legislative framework for seed that covers a variety of registration procedures. The country has made such provisions in recognition of the fact that timely variety evaluation, release and registration is fundamental in the determination of prompt adoption by farmers. The breeding station or company that has developed a new variety is required to test it in multi-locational trials for two seasons in order to provide supporting data for the new variety to enter into subsequent stages of evaluation. The new variety is thereafter subjected to on-farm assessments in order to obtain farmers' opinions on the performance of the variety. The data from the multi-locational trial, also known as the Advanced Yield Trial (AYT) trial are then packaged in a variety of release proposal which is used to apply for DUS and one season National Performance Trial (NPT) which is conducted by TOSCI. Outcomes of valuation of the data of these trials through meetings of various committees established for this purpose make a basis for a decision to register a variety in the National Variety Catalogue.

Tanzania uses three pathways for variety registration: the AYT/NPT testing and release pathway at the national level, the ASARECA (Eastern Africa region) pathway and the SADC Catalogue pathway.

1.3 Importance of registered varieties in the potato seed market

Access to quality seed of improved varieties improves food security and diversifies gene pool resources. In addition, the availability of quality seeds makes it possible for the re-establishment of farmers' livelihoods impaired by natural calamities, climate change, agroecological disturbances, adverse habitat manipulation and degradation of cropping systems. The availability of improved potato varieties in the seed trade is essential for the country's seed sovereignty.

1.4 Rationale for a guideline on registration of potato varieties

Agricultural seeds are registered for several reasons worldwide: assurance for clean germplasms, availability of pure varieties, guaranteed quality, effective traceability, addressing new opportunities and access to premium markets, to mention a few. Registration of plant varieties is of utmost importance for the least developing countries whose economies, like

Tanzania, rely greatly on agriculture. Tanzania's agricultural sector employs about 65 percent of the population and contributes 26 percent of the GDP. Tanzania put legislation in place for control and regulation of agricultural seed standards to safeguard its agriculture. Tanzania strongly encourages the utilization of registered varieties with suitable traits to address various agricultural challenges.

This document intends to provide a stepwise and simplified, yet consolidated procedure for potato variety registration in Tanzania. The legislation guiding variety registration including potato varieties is presented in segregated Sections of the Seed Act (2003), Seed Regulations (2007) and their subsequent amendments, Plant Health Act (2020), Environmental Management Act (2004) and its Regulation, as amended and other related legislations, Memorandum of Understandings and other directives. The document is expected to provide a simplified presentation of the provisions of these legislations and thereby elaborate clearly on the registration process. As a result, it is expected to result in increased investment in the potato sub-sector, provision of more quality seeds in the Tanzanian market, raised production, diversification of the gene pool resources and improved competition that will benefit potato farmers.

The work on the preparation of this guideline was undertaken by a Consultant with facilitation from the Government-to-Government (G2G) Project; a project funded by the Dutch Government with the aim of improving the seed potato production system in Tanzania. The guideline was technically verified by the Director General of TOSCI.

CHAPTER TWO: VARIETY TESTING AND EVALUATION

2.1 Introduction

Variety testing and evaluation procedure is based on provisions of the Tanzanian seed legislation, i.e., the Seed Act of 2003 and the Seed Regulations 2007 (as amended regularly). Tanzania Official Seed Certification Institute (TOSCI) (established under the Seed Act of 2003) is a government institution under the Ministry of Agriculture responsible for seed certification and quality control in Tanzania which includes variety evaluation, release and registration.

TOSCI is the national designated authority for undertaking necessary technical processes leading to the release and registration of any variety intended to be marketed in Tanzania. The Institute is therefore responsible for Distinctness, Uniformity and Stability (DUS) testing; and National Performance Trials (NPT). The DUS test results are used to determine the morphological characteristics of a variety and support the certification of seeds of any variety. NPT results combined with the Advanced Yield Trials (AYT) results are used for establishing Value for Cultivation and Use (VCU) before it is released and registered. Under the system, locally bred varieties are tested for at least two seasons under the breeder's management and one season under TOSCI before release for commercialization.

2.2 Distinctness, uniformity and stability testing

The Distinctness, Uniformity and Stability (DUS) testing is a way of determining whether a variety being examined differs sufficiently from all existing varieties of plants it is sufficiently uniform and that it is stable across seasons. A DUS test report and variety characterization or description are used during seed crop inspection to establish the genetic purity of the seed crop. This test is a growing test conducted in the field over one or two successive growing seasons after the breeder has submitted the descriptors for the candidate variety. Through this test morphological characteristics of the variety under evaluation are recorded and compared against old and other new varieties of plants.

2.3 Advanced yield trials

Advanced yield trials are conducted by the breeder as part of the procedure to evaluate the value for cultivation and use (VCU) of the particular variety before it is submitted to TOSCI for one season verification trial known as National Performance Trial (NPT).

Under the Seed Regulations (2007, with its amendments), the breeder/applicant for variety registration is required to set the AYT in specified multi-locational sites provided in Seed Regulations (2007). The Regulations require the applicant to conduct the AYT in at least three multi-locational sites repeated in two seasons and the candidate variety must be compared with check variety or varieties which are the most common varieties in the market selected from time to time by TOSCI.

2.4 National Performance Trials

Following completion of the AYT conducted in at least three multi-locational sites over a period of two seasons, the applicant shall submit the AYT data to TOSCI together with seed samples of the candidate potato variety which is sufficient for DUS testing and a one-season verification trial – the NPT. The results of this trial, together with AYT data will be tabled at the National

Performance Trial – Technical Committee (NPT – TC) meeting for its consideration before making recommendations to the National Variety Release Committee (NVRC) .

2.5 On-farm assessment

In Tanzania, on-farm testing to establish farmers' opinions on the candidate variety which is conducted in farmers' plots is mandatory. The on-farm trials must be conducted by a recognized social economist.

CHAPTER THREE: VARIETY RELEASE PROCEDURE

3.1 Meaning of Variety Release

In Tanzania, variety release is regarded as a decision made by the National Variety Release Committee to recommend a candidate variety to the National Seed Committee for consideration and this is only possible if the variety has been recommended by the NPT-TC indicating that the variety has met DUS, VCU and On-farm testing requirements. However, vegetable varieties and other related varieties are considered released once they have met DUS requirements and may not require VCU and On-farm testing.

3.2 Committees for reviewing an application for release and registration

3.2.1 Types of Committees and Sub-committees

The seed legislation has established machinery to review reports made to support applications for variety release. The Seed Act has established the National Seed Committee (NSC) while the National Variety Release Committee (NVRC) and National Performance Trial–Technical Committee (NPT-TC) are established under the Seed Regulations as sub-committees.

3.2.2 National Performance Trial – Technical Committee

National Performance Trial – Technical Committee (NPT-TC) is a sub-committee that reviews the NPT and DUS reports. The NPT-TC is composed of the Chief Seed Certification Officer, who serves as the Chairperson; and seven other members, all appointed by the Permanent Secretary of the Ministry responsible for agriculture:

- (a) Seed technologist from the department responsible for coordination and supervision of seeds industry in the Ministry of Agriculture.
- (b) One plant breeder from the department responsible for research in the Ministry of Agriculture.
- (c) Head of the National Performance Trial Section of TOSCI who serves as the Secretary.
- (d) One plant pathologist from an agricultural university, appointed upon consultation with agricultural universities.
- (e) One plant entomologist from a higher learning institution, appointed upon consultation with agricultural universities.
- (f) One plant breeder from a plantation crops research institution to be appointed by the Permanent Secretary, upon consultation with respective institutions.
- (g) One seed producer representing Tanzania Seed Trade Association, appointed by the Permanent Secretary, upon consultation with respective associations.

3.2.3 National Variety Release Committee

The National Variety Release Committee (NVRC) is responsible for reviewing recommendations of the NPT-TC and making recommendations to the National Seed Committee. The NVRC is composed of the Director of Crop Development in the Ministry responsible for agriculture who serves as the Chairperson, and thirteen other members as follows:

- (a) Director of Research in the Ministry of Agriculture.
- (b) An officer In-charge of plant quarantine services in the country.
- (c) An officer In-charge of coordinating and supervising seed industry, serving also as secretary of the committee.
- (d) Chief Seed Certification Officer.

- (e) Curator of Gene Bank at the National Plant Genetic Resources Centre.
- (f) Head of National Performance Trial Section within TOSCI.
- (g) Plant breeder from agricultural universities, appointed by the Permanent Secretary.
- (h) One plant pathologist from a public research institution, appointed by the Permanent Secretary.
- (i) Registrar of Plant Breeders' Rights.
- (j) A representative from the Tanzania Seed Trade Association appointed by the Permanent Secretary, upon consultation with the respective association.
- (k) Chief Executive Officer of Agricultural Seed Agency.
- (l) A representative from Plant Breeders' Association, appointed by the Permanent Secretary, upon recommendation by the respective association.
- (m) A representative from the farmers' association, appointed by the Permanent Secretary upon recommendations of the respective association.

3.2.4 National Seed Committee

The National Seed Committee (NSC) is a stakeholder forum responsible for advising the Government on all matters relating to the development of the Tanzania seed industry including variety registration.

The NSC is composed of the Permanent Secretary of the Ministry responsible for Agriculture who shall serve as its Chairperson. Other members include:

- (a) The officer responsible for coordination and supervision of the seed industry in the Ministry, also serving as its Secretary.
- (b) The head of the division in the Ministry for the time being responsible for crop research.
- (c) The head of the division in the Ministry for the time being responsible for crop development.
- (d) Chief Seed Quality Controller.
- (e) Registrar of Plant Varieties (Plant Breeders' Rights).
- (f) A representative of the Tanzania Seed Trader Association, appointed by the Minister responsible for agriculture.
- (g) A representative from a higher learning institution responsible for agriculture, appointed by the Minister responsible for agriculture.
- (h) A representative from the seed consumers' association, appointed by the Minister responsible for agriculture.

CHAPTER FOUR: SUBMISSION OF APPLICATION AND REGISTRATION PROCEDURE

4.1 Submission of application for variety registration

An application for variety registration is submitted by the applicant after fulfilling the requirements for DUS, AYT, NPT and On-farm testing. During the process, the applicant or breeder shall also be required to submit an acceptable variety denomination (name).

4.2 Variety evaluation conducted by TOSCI

4.2.1 In order to determine the appropriateness and suitability of a variety applied to be released in Tanzania, TOSCI shall:

4.2.1.1 Evaluate the completeness and rationale of the received application package (DUS and NPT).

4.2.1.2 Examine the technical information provided for the DUS application, and further ensure that the following have been provided during the submission of the application:

- a) Sufficient seed sample.
- b) Variety description.
- c) Applicable DUS testing fees
- d) Variety name.

4.2.1.3 Conduct DUS test, report results and issue DUS test certificate to the applicant (Form SR IV of the Fifth Schedule). Tanzania may accept DUS test report from any country in a harmonization agreement with Tanzania and the DUS test must have been conducted using UPOV Test Guidelines.

4.2.2 TOSCI shall conduct a one-season NPT if the application for release has met the following:

- (a) has at least two recent Advanced Yield Trial (AYT) data from at least three recognized testing sites in Tanzania or any other country in a harmonization agreement with Tanzania.
- (b) has on-farm trial and farmers' assessment data conducted by a social economist.
- (c) is accompanied by sufficient seed sample for NPT and second DUS tests.
- (d) is accompanied by proof of payment of the fees for conducting NPT and second DUS testing.
- (e) is accompanied by any other additional information necessary for evaluating the variety.

4.2.3 If the application has met all conditions under item 4.2.2, TOSCI shall conduct NPT for a minimum of one season in at least three sites; and shall conduct a second DUS test.

4.2.4 TOSCI shall submit the AYT and NPT reports to NPT-TC for review.

4.2.5 NPT-TC shall review the reports and shall also verify the suitability of the proposed variety name, which should be unique.

4.2.6 The Secretary of NPT-TC shall report a decision of the NPT-TC to the Applicant and present recommendations of the NPT-TC to the NVRC.

4.2.7 The NVRC shall review the recommendations of the NPT-TC and then make its own recommendations and forward them to the NSC which shall advise the Minister responsible for agriculture for decision. The Minister will gazette his decision in any of the print media.

4.3 National Listing (Variety registration) and issuance of the certificate

- 4.3.1 Following approval by the Minister, the Director of Crop Development in the Ministry responsible for agriculture shall communicate the decision of the Minister to TOSCI who shall register the variety in the National Variety Catalogue (National List).
- 4.3.2 Following registration of the variety, TOSCI will issue a Certificate of Registration to the Applicant and the certificate must be displayed conspicuously on the business premises of the registered seed dealer.
- 4.3.3 TOSCI shall enter the information hereunder in the National Variety Catalogue upon registration:-
- (a) Name of registrant;
 - (b) Variety name;
 - (c) Plant species;
 - (d) Registration number;
 - (e) Registration date;
 - (f) Date of release;
 - (g) Name of the breeder;
 - (h) Origin of the variety;
 - (j) Area of adaptation;
 - (k) Duration of maturity;
 - (l) Yield potential;
 - (m) Tolerance to insect pest(s);
 - (n) Disease tolerance;
 - (o) End-use;
 - (p) The agency responsible for maintenance;
 - (q) Any other characteristics with reference to DUS;
 - (r) Other information deemed necessary.
- 4.3.4 TOSCI shall keep, maintain and update the National Variety Catalogue.

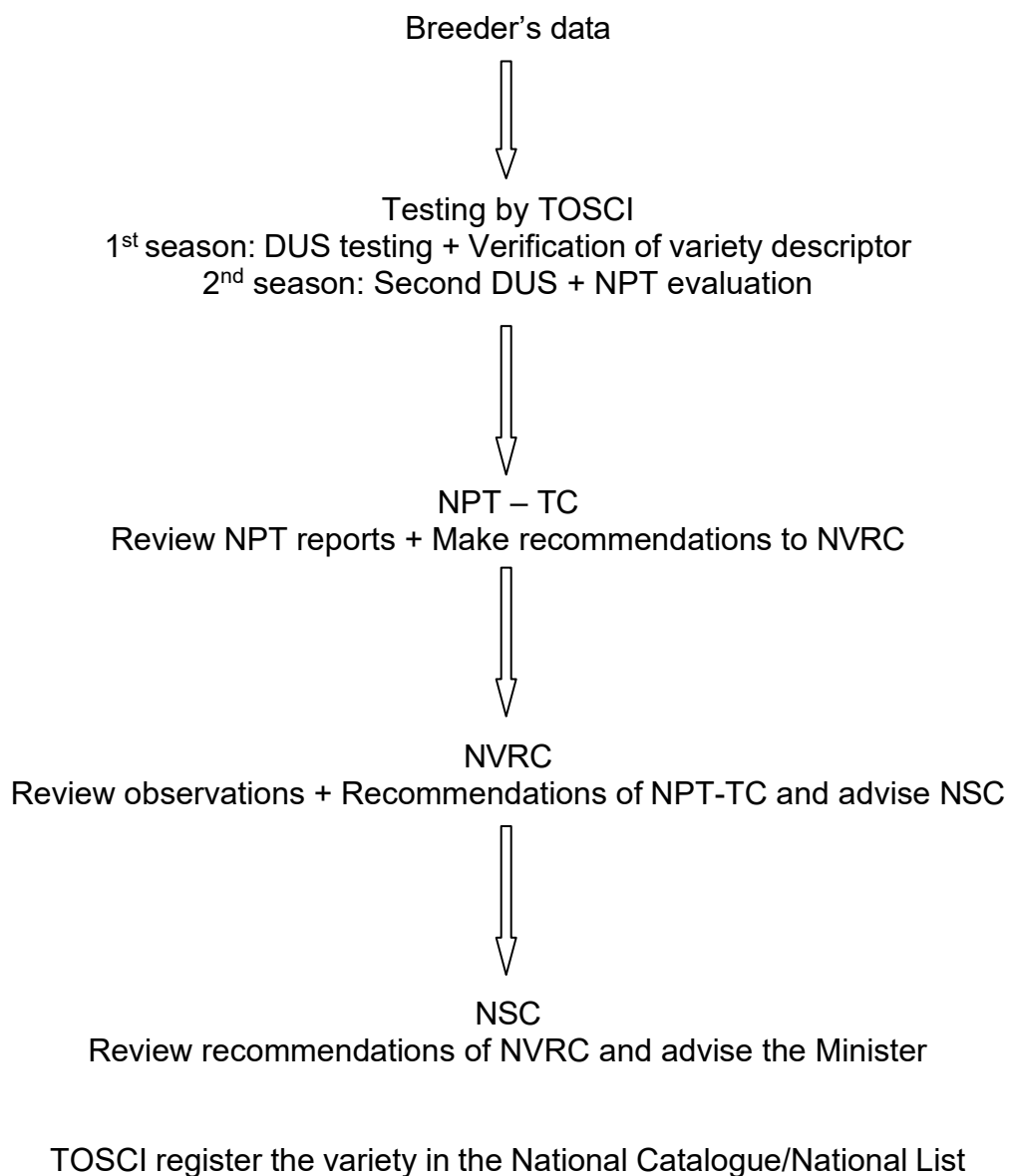
4.4 Variety deregistration

- 4.4.1 TOSCI, in consultation with NSC and with the registrant confiding this to be true, may deregister a variety, but only in the event that it no longer conforms to its original description or has lost its qualitative and quantitative attributes for which it was released.
- 4.4.2 Authentic seed samples of the deregistered variety shall be sent to the National Plant Genetic Resources bank for conservation.
- 4.4.3 TOSCI shall notify the applicant when the registration has been refused and give reasons for doing so.

4.5 Appeals

- 4.5.1 Any applicant, owner of a variety or seed dealer who is aggrieved by the decision of the TOSCI, NPT-TC or NVRC, may appeal to the NSC
- 4.5.2 Any applicant, owner of variety or seed dealer who is aggrieved by the decision of NSC, may appeal to the Minister responsible for agriculture.
- 4.5.3 All appeals whose time limits have been provided in the Seed Act or Regulations shall be filed with the Minister responsible for agriculture within fourteen (14) days of receiving the verdict of the registration outcome.

A simplified schematic flow of the variety release and registration process in Tanzania can be presented as follows:



CHAPTER FIVE: REGIONAL HARMONIZATION OF SEED SYSTEMS

5.1 Introduction

In addition to the national variety registration option described under Chapter One to Four, potato breeder has an option of fast-tracking variety registration and commercialization a variety by either choosing to use the approach agreed upon by eastern African countries that are members of ASARECA or registering the variety in the SADC Variety Catalogue. The two approaches are also recognized by the Tanzanian seed legislation.

5.2 Variety release through harmonization of seed policy and legislation in the ASARECA region

In the early 2000s, Eastern African countries that are members of ASARECA agreed to fast track to enhance cross-border seed trade in the region by signing an agreement on harmonization of seed policies and legislations. The agreement which was published as ASARECA Monograph 4, covered variety testing and release procedures, seed certification, phytosanitary measures and variety protection (plant breeders' rights).

As for variety testing and release, the agreement intended to fast-track the registration process by making it possible for a breeder to use two seasons data of the Advanced Yield Trial (AYT) obtained and generated from any ASARECA member state which has signed the agreement while applying for variety evaluation for release in another member state instead of repeating the same trial. The agreement requires such data to be obtained from similar agroecology the breeder intends to release in other eastern African states. It also provides that if the data are acceptable, the other state will only conduct a one-season National Performance Trial (NPT) to verify the AYT data. Once AYT and NPT data are available and the variety has been tested for DUS and also evaluated on-farm to obtain farmers' opinion, it can be considered for release and registration by the national authority of the other state. The national legislation in Tanzania recognizes this agreement through the provisions of Regulation 7(4).

5.3 SADC variety registration pathway

The Southern African Development Community (SADC) has developed a harmonized seed regulatory system (HSRS) through a Memorandum of Understanding (MoU) among partner states which covers areas of variety registration, seed certification and sanitary and phytosanitary (SPS) measures. The HSRS is the basis for the SADC Variety Release and Registration system. The system established a SADC Variety Catalogue

5.3.1 SADC Variety Registration and Release in Partner States

- 5.3.1.1 Once the SADC Authority on seeds is satisfied that the applicant has fulfilled all the requirements, including valid DUS and VCU information obtained from field experiments conducted in at least two Member States, it shall register the variety in the SADC Variety Catalogue and notify all seed authorities of the State Parties and the applicant.
- 5.3.1.2 From the date a variety is entered in the SADC Variety Catalogue, it is considered released and may be sold, without further testing, in any SADC Member State which has signed the MoU with similar agro-ecological conditions for which the variety was bred (and tested).

5.3.1.3 This procedure is applicable to plant varieties of all crops including potatoes and is applicable in Tanzania.

The procedure for registration of varieties in the SADC Variety Catalogue is summarized as follows :

1	Application for entry in the SADC Variety Catalogue
2	Proof of registration in two SADC Member States
3	Proof of DUS testing in country of application
4	Two growing season VCU testing results (data) from two SADC Member States which have signed the SADC MoU
5	Variety holder has a registered business address in the country of application
6	Proposed variety denomination (name)
7	Reference sample provided to National Seed Authority

