

SEED CLASSES AND THEIR MAINTENANCE

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BY

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OUTLINE OF THE PRESENTATION

- Introduction
- Seed certification classes
- Seed classes standards
- Maintenance of seed classes

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INTRODUCTION

- Seed certification class is a generation system of seed multiplication for production of a particular class from specific class up to certified stage.

- Refers to the number of generations distant this seed is from the original variety as developed by the plant breeder

INTRODUCTION

The generation system model depends on:-

1. The rate of genetic deterioration
2. Seed multiplication ratio
3. The total seed demand

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Introd' continued

Based on these factors different seed multiplication models can be derived

1. Three-Generation model: Breeder seed (BS), Foundation seed (FS) and certified seed (CS)
2. Four-Generation model: BS, FS, Registered seed (RS), and CS or BS, PB, BS, and CS
3. Five-Generation model: BS, FS (i), FS (ii), CS(i) and CS (ii)

NB: In cross pollinated crops three and four generation model system is used

Intro' continued

- Generally two seed classes of nomenclature are recognized, the Organization for Economic Cooperation and Development (OECD) Association of Official Seed Certifying Agencies (AOSCA)

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SEED CLASSES

- The following classes of certified seed of released varieties are recognized by seed certifying agencies

1. Breeder
2. Foundation/Pre-basic
3. Registered/Basic
4. certified

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Breeder seed

- It is the progeny of the nucleus seed
- Produced directly under plant breeder supervision
- Produced in one or more stages
- Used for production of pre-basic or basic seed.
- 99.9% genetically and 100% physically pure.
- Labeled upon meeting quality standards
- Pre-controlled to determine its genetic purity.
- Not available for general cultivation

Pre-basic seed

- It is the progeny of breeder seed
- Produced under the supervision of the breeder and seed certifying agency.
- The seed is not available for general cultivation.
- It is the source of basic seed.
- Pre-controlled to determine its genetic purity
- Labelled upon meeting the quality standard

Basic seed

- It is a progeny of pre-basic seed
- Produced under the supervision of the plant breeder and the seed certifying agency
- Not available for general cultivation
- Pre-controlled to determine its genetic purity.
- Labeled upon meeting quality standards

Certified seed

- Progeny of basic seed
- Available to farmers for general cultivation.
- Produced under control of seed certifying agency
- Further generations of certified classes may be produced using this class.
- Labelled upon meeting quality standards
- This class of seed requires post controlling.

Comparative seed classes and colour of labels for selected regions

Defination	ASARECA	COMESA	SADC	OECD	AOSCA
1 st generation supplied by the breeder	Pre-basic -	Pre-basic - White with Violet band	Breeder	Pre-basic - White with diagonal violet stripe	Breeder - White
2 nd Generation	Basic	Basic - White	Pre-basic - violet band on white	Basic - White	Foundation - White
3 rd Generation	Certified generation 1 st	Certified generation - Blue 1 st	Basic - white	Certified generation - Red 1 st	Registered - Purple
4 th Generation	Certified generation 2 nd	Certified generation - Red 2 nd	Certified generation - Blue 1 st	Certified generation - Red 2 nd	Certified - Blue
5 th Generation			Certified generation - Red 2 nd		
Others			Quality declared seed - Green	Not finally certified - Gray	

STANDARDS OF VARIOUS SEED CLASSES IN KENYA

Field standards for Maize - isolation distance and purity		
Class	Distance	Max. no. of offtype per 100 plants
Breeder	400	0
Pre basic	400	0
Basic	400	0
C1	200	1
C2-4	200	2

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Regional seed classes standards for hybrid maize

Field standard	SADC		ASARECA		COMESA	
	Basic	Certified	Basic	Certified	Basic	Certified
Minimum previous cropping season			1	1	1*	1*
Isolaton (M)	400	350	400	200	400	200
Maximum off-types	0.1	0.3	0	1	0.1	0.2
Minimum number of inspections	5	5	5	3	3	3
Head smut at final inspection			0	2plant/ha	0	0
Minimum germination (%)	70	90	90	90	80	90
Minimum pure seed (%)	99	99	99	99	99	99

MAINTENANCE OF SEED CLASSES

Clauses of genetic purity of seed

1. Developmental variation
2. Mechanical Mixtures
3. Mutation
4. Natural Crossing
5. Genetic drift
6. Selective influence of Disease
7. Breakdown of male sterility
8. Improper Seed Certification

Maintenance of Genetic Purity during seed Production

The following methods have been suggested for maintenance of genetic purity

1. Use of approved seed in seed multiplication
2. Inspection of seed fields prior to planting
3. Field inspection of seed crops
4. Sampling and sealing of cleaned lots
5. Pre/post control (Grow -out test)

Various steps in genetic purity maintenance

Various steps suggested for maintaining genetic purity are

1. Providing isolation to prevent cross fertilization or mechanical mixtures
2. Rouging of seed fields prior to planting
3. Periodic testing of varieties for genetic purity
4. Grow in adapted areas only to avoid genetic shifts in the variety
5. Certification of seed crops to maintain genetic purity and quality
6. Adopting generation system

Procedures for variety maintenance

The commonly used procedures are

1. Mass selection
2. Ear-to-row

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CONCLUSION

- Certified seed must relate directly to authentic basic seed of the variety and seed classes makes this possible

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Thanks

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