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Federal Democratic Republic of Ethiopia
MINISTRY OF AGRICULTURE AND NATURAL RESOURCES

ቁጥር No. 21/AA12/2/11
ቀን Date 22/03/2016

FAO sub regional office for Eastern Africa, AU and ECA
Addis Ababa

Subject: - Sending Emergency Seed Guidelines

As indicated in the subject until the directives for the emergency seed is prepared and approved you can use the attached temporarily emergency seed guidelines as recommended in the guidelines.

With kind regards,

Weldehawariat Assefa
Director, Plant Health Regulatory Directorate

The Federal Democratic Republic of Ethiopia Ministry of Agriculture & Natural Resources

Food and Agriculture Organization of the United Nations (FAO)
FAO - Ethiopia - Registry
Date Rec'd 23 MAR. 2016
Sign. .....

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Ethiopia-Addis Ababa

Temporally
Emergency Seed Guidelines

Guidelines no 2/2016

Part

Genaral

1. Issuance Authority

The Ministry of Agriculture and Natural resource as authorized by the Seed proclamation No 782/2013 Article 27/2 this guidelines is Issued to Implement the supply of emergency seed

2. Short Title

These Guidelines may be cited as the Temporally Emergency Seed Guidelines

No 2/2008

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Introduction

Emergency agricultural assistance – including emergency seed provision – seeks to accelerate the recovery of poorer smallholders farmers' from shocks crises such as drought and flood, by providing inputs that will help them return to normal production in the shortest possible time. In Ethiopia, emergency seed provision has been supported by a range of stakeholders: Government, UN agencies and international and local NGOs.

In order for emergency seed provision to be effective, seed-based interventions need to follow tried and tested principles that centre on the deliveryof high quality seed of appropriate crop types and varieties for the agro-ecology where they are being distributed and that distributions are timely in particular avoiding long periods in temporary and inappropriate storage facilities.

In order to assist stakeholders provide high quality emergency assistance during the current El Niño-induced drought, the Disaster Risk Management - Ministry of Agriculture and Natural Resource has produced these Temporary Emergency Seed Intervention Guidelines.

1. Objective

The purpose of this guidelines is to provide a guidance to partners working in emergency seed provision to distribute quality emergency seed to drought affected communities and households

1.1 Key definitions:

- "variety" means a plant grouping within a single botanical taxon of the lowest known rank, which can be:

  a) defined by the expression of the characteristics resulting from a given genotype or combination of genotypes;

  b) distinguished from any other plant grouping by the expression of at least one of said characteristics; and

c) considered as a unit with regard to its suitability for being propagated unchanged;

- **Seed:** true seed, bulbs, tubers, cuttings, nursery plants of field and garden crops or any other plant material used for the propagation of plants;
- **Approved seed:** seed produced in Ethiopia or imported seed which has been certified by Regulatory body the Ethiopia Quality and Standards Authority or other body delegated by the Authority for conforming to the standards established and which is intended for planting;
- **Ethiopian Seed Standards:** national seed standards issued by the Ethiopian Standards Agency;
- ***Informal Seed System:*** is unregulated seed operations that are largely characterized by localized efforts of seed selection, multiplication, use, and exchange between farmers and/or farming communities without any oversight or standards.
- **Intermediate *Seed System:*** a system between the informal and formal that is centred on external support to improve smallholder access to technologies and certified seed;
- ***Formal Seed System:***a seed production and supply mechanisms that is defined and regulated by regulatory body and inspected;
- ***Seed Producer*:** a person who produces seed;
- ***Inspector:*** a person authorized by Regulatory body to inspect seed for conformity to Ethiopian seed standards by visiting production, processing and storage premises as well as wholesale and retail shops;
- ***Physical Quality:***analytical purity, freed from contamination of other crop/weed seeds, size and weight of seeds, and seed uniformity;
- ***Health Quality:*** absence of infection from seed borne pests (fungi, bacteria, virus, etc.) or contamination with noxious weeds;
  a) ***Physiological Quality:*** seed viability, germination, and vigor of seed which determines germination and subsequent seedling emergence and crop establishment in the field as well as the storage potential of the seed sample;
  b) ***Genetic Purity:*** the percentage of contamination by genetic material of other varieties or species;
  c) ***Germination:*** *The resumption of growth by the embryo*
  d) ***Labeling***: any legend, symbol or design applied or attached to package of any seed or which goes with the seed and indicates the quality and quantity of seed.
  e) ***Sub-Standard Seed*** means any seed which does not conform to the quality requirements of the Ethiopian Seed Standards.

Part two
Seed system of the country, Quality parameter

2. Ethiopia's Seed Systems

Ethiopian agriculture is supported by three overlapping seed systems: informal, Intermediate and formal.

2.1 Informal seed system

Informal seed systems are smallholder managed and centred on the management of varieties which are selected over long time periods and produced for local agro-ecologies under local conditions. Informal seed systems should not however be confused with sub-standard systems as farmers select, safe and share seed using the best technologies they have available. The informal seed supplies an estimated 85 to 90 per cent of all seeds used by smallholder farmers in Ethiopia.

2.2 Intermediate seed system

Intermediate seed systems are also known as community-based seed systems and involve external support to improve smallholder farmers' access to technologies to up-grade local seed supply systems. The Intermediate seed system focus on improving local varieties through breeding and selection but also includes the release of certified seeds to smallholders from the formal seed system including the National Agricultural Research System (NARS) and International Agricultural Research Centres (IARCs). The Intermediate seed system is therefore something In between the informal and formal seed systems.

2.3 Formal seed systems

Formal seed systems are strictly managed by defined standard and proper inspection. formal seed systems is based on Field and Laboratory standards. The Government provides regulatory support to the formal seed system by designing and approving policies and regulatory frameworks that strengthen efficiency and effectiveness of variety release, seed quality control, phytosanitory measures and plant breeder's right. The formal seed system in Ethiopia provides an estimated 10 to 15 per cent of all smallholder farmers in Ethiopia.

3. Seed quality

It is important that seeds – true seeds, bulbs, cuttings and all nursery planting material and planting materials – that are moved across regional boundaries are free from pests, disease and weed seeds, in order that these are not spread between regions. For this reason, all seed movement across the country should be authorised and monitored both by federal and regional regulatory body

3.1 Phyto-sanitary measures

Irrespective of whether or not seeds are moved between regions, all seeds should be free from pests, disease and weeds.

3.2 Moisture content

Moisture content is perhaps the most critical factor affecting the rate of seed quality and viability with optimum moisture content depending on crop type and temperature.

Seed quality parameters

The primary aim of emergency seed operations is to provide crisis affected smallholder farmers with quality seed of appropriate crops and varieties in a timely manner in order they plant their fields when otherwise they might not or may only have access to sub-standard seed. The provision of quality seed has the best possible chance of producing healthy, high yielding crops, other variables - rainfall, soil fertility and crop protection – notwithstanding. It is therefore important that all emergency seed operations meet the following parameters:

- Physical quality;
- Physiological quality;
- Genetic quality; and
- Health.

3.3.1 Physical quality

Physical quality can be characterized as follows:

- Minimal damaged seed i.e. broken, cracked or shrivelled seed that will not germinate. Damaged seed can be removed during cleaning and processing;
- Minimal inert matter – chaff, soil – and free of weed seeds. Again, almost all these impurities can be discarded during cleaning and processing;
- No diseased – discoloured or stained seed that indicate the seed carries micro-organisms that have already attacked the seed and will attack the growing plant and potentially spread to other plants;

- Uniform large seed size will generally have higher germination rates and increased vigour than smaller seed. As mentioned, smaller seeds will be removed in standard seed cleaning and processing.

Once seeds have been cleaned and processed seed can be checked – closely examining a handful of seed – to ensure that physical quality parameters have been met.

3.3.2 Physiological quality

Once the seed has been cleaned and meets physical quality requirements it can be tested for its physiological quality. Physiological quality is measured on two separate scales, germination rate and vigour. Germination rate is the number of seeds from a sample that sprout, while vigor relates to seed's capacity to emerge from the soil and survive and thrive under field conditions. Seeds that germinate may or may not exhibit high vigour. Both are of importance in establishing good and productive crops.

3.3.3 Genetic quality

Many agriculture crops – cereals, roots and tubers, pulses –comprise a large number of varieties and or landraces the result of planned, long-term, formal or farmer-level selection and breeding. Varieties and landraces are genetically stable and produce plants with the same distinguishing characteristics – morphological, physiological, cytological, chemical and other over different generations. Varieties and landraces are typically grown to perform well under divergent agriculture conditions – region, rainfall regime, soil type, soil fertility. Varieties and landraces are also developed to meet a range of other characteristics – yields, resistance to pests and diseases, ease of harvesting, storage, use, type of cooking and importantly, taste.

While the genetic qualities may be quite different, it may not be possible to distinguish varieties if seeds are mixed, so it is important to keep seeds of different varieties and landraces separate.

3.3.4 Health

Seed health refers to the presence or absence of disease-causing organisms – fungi, bacteria and viruses – as well as insect pests, including nematodes and insects and can be carried out in laboratories in order to assess quality.Ensuring seed health quality is important as:

- Diseased seeds may result in diseased and poor performing crops;
- Emergency seed distributions that include diseased seed may result in the transmission of diseases to previously un-infected areas.

Seed that is has become contaminated by insects can be fumigated, while disease-causing organisms can be controlled by seed treatment during cleaning and processing or prior to planting. The use of seed treatment products is however regulated based on national registration scheme.

4. Vegetative planting material

In recent years, emergency seed interventions in Ethiopia have been expanded to include vegetative planting materials in particular for root and tuber crops – sweet potato, Irish potato, taro and cassava. However, in some cases it is now known that diseased planting material has been distributed including into areas where the diseases were previously not common. As with seed therefore it is important that all vegetative planting material is disease free and therefore that planting material is inspected at source by qualified staff before and at the point of collection.

Part three
Source and steps for Intervention

5. Sources of Emergency Seed

Seed and planting material that is produced by approved and regulated seed producers is typically of high physical, physiological, genetic and health quality (see Annex 1). For this reason, the following sources are recommended:

- Registered federal and regional seed enterprises
- Registered private seed enterprises
- Registered multi-purpose seed cooperatives

When the Ministry of Agriculture and Natural Resource(MOANR) declared emergency situations the seed from formal sources may not be able to meet the demand, seed may be collected from state and private farms, un-registered seed producing cooperatives and smallholder farmers including through seed fairs and other community-based initiatives as far as the seed source is known.

6. Steps for emergency seed intervention[i]

While recognising that in periods of crisis that it may be necessary to source seed from non-formal sources like Intermediate and informal seed system it is required, the following steps are taken to ensure that the emergency seed to be distributed should meets quality standards:

- Seed samples: seed samples should be taken according to the guidance provided (see Annexes II)
- Physical test: the size and shape of seed must be uniform– all seed should be cleaned if at all possible;
- Germination test: all seed should meet germination standards;
- Health tests: a physical examination of seed for discolouration or disease or infestation
- Labels: all seeds to be distributed should be labelled – including to make clear that the seed is being distributed as part of an **emergency intervention** – that provides details on the tests and therefore the seed quality
- Emergency seeds to be distributed to affected smallholder farmers must be carried out in close consultation and collaboration with target regions and woreda agriculture offices.
- Crop varieties for emergency seed intervention must be well adapted to the agro-ecological conditions of the target woredas, and recommended seed rates and package of practices for specific crop must be considered.

Annex 1: Minimum requirements

Crop type	Characteristics			
	Purity (%)	Infestation (max %)	Germination (min %)	Moisture Content (max %)
Wheat	95	0.1	80	13
Maize	95	0.1	85	13
Teff	NS	1	80	11
Barley	95	0.1	80	13
Sorghum	97	1	75	12
Haricot bean	93	0.4	70	12
Chick pea	-	0.4	75	12

Lentils	93	0.4	75	12
Soyabean	93	0.2	70	12
Sesame	97	NS	85	8*
Root and Tuber crops				
Crop type	Purity (%)	Disease Standard	Sprouting (min%)	Sprouting Quality
Irish potato	NS	Disease free	NS	94 %
Sweet potato	NS	Disease free	NS	3-5 nodes per 25-30cm long

NS:- not specified

Annex II Minimum seed sampling requirements for seed bags-ES 471:2000

Lot size	Number of primary samples to be taken
Up to 5 containers	Sample each container and always take at least five primary sample
6-30 containers	Sample at least one in every five containers, or whichever is greater
31 to 400 containers	Sample 10 container or at least one in every five containers, whichever is greater
400containers or more	Sample 80 containers or at least one in every seven containers, whichever is greater

Note: ES 471: 2000: Ethiopian Standard

Annex III Minimum seed sampling requirements for seed lots in bulk or from streams of seeds entering containers-ES 471:2000

Lot size in kg	Number of primary samples to be taken
Up to 500	At least five primary samples
501-3,000	One primary sample for each 300 kg., but not less than 5
3,001 to20,000	One primary sample for each 500 kg., but not less than 10
21,000 and above	One primary sample for each 700 kg., but not less than 40

Note:-ES 471: 2000: Ethiopian Standard