

(MAIZE *Zea mays* L.) INBRED LINES

I. Application and Amplification of General Seed Certification Standards

A. The General Seed Certification Standards are basic and, together with the following specific standards constitute the standards for certification of the seeds of maize inbred lines.

B. The General Standards are amplified as follows to apply specifically to the inbred lines of maize:

1. Eligibility requirements for certification

An inbred line to be eligible for certification must be from a source such that its identity may be assured and approved by the Certification Agency.

2. Classes and Sources of Seed

An inbred line must be a relatively true breeding strain.

3. Seed house or bin inspection

The inbred lines shall be ear-inspected after maturity by the Certification Agency.

II. Land Requirements

Land to be used for inbred line increase of maize shall be free of volunteer plants.

III. Field Inspection

A minimum of four inspections shall be made in such a way that one is done before flowering and the remaining three during flowering.

IV. Field Standards

A. General requirements

1. Isolation

(a) Seed fields shall be isolated from the contaminants shown in column 1 of the Table below by the distances specified in column 2 of the said Table :

<i>Contaminants</i>	<i>Minimum distance (metres)</i>
1	2
Fields of any maize with same kernel colour and texture	400
Fields of any maize with different kernel colour and texture, and teosinte	600
Fields of the same inbred line not conforming to varietal purity requirements for certification	400
(b) Differential blooming dates will be permitted for modifying isolation distances with any type of maize provided 5.0% or more of the plants in the seed parent do not have receptive silks when more than 0.20% of plants in the adjacent field(s) within the prescribed isolation distance are shedding pollen.	

B. Specific requirements

<i>Factor</i>	<i>Maximum permitted (%)*</i>
**Offtype plants that have shed or are shedding pollen when 5.0% or more of the plants in the seed field have apparently receptive silks	0.20

*Maximum permitted at any one inspection conducted during flowering.

**Sucker tassels, portions of tassels, and tassels on main plants will be counted as shedding pollen only when two inches or more of the centre spike, the side branches, or a combination of the two have the anthers exerted from the glumes and are shedding pollen.

V. Seed Standards

A. Seed ears inspected after harvest shall not contain in excess of 0.20% of offtype ears including ears with off-coloured kernels.

<i>Factor</i>	<i>Standard</i>
Pure seed (minimum)	98.0%
Inert matter (maximum)	2.0%
Other crop seeds (maximum)	5/kg

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Other distinguishable varieties based on kernel colour and texture (maximum)	5/kg
Weed seeds (maximum)	None
Germination (minimum)	80%
Moisture (maximum)	12.0%
For vapour-proof containers (maximum)	8.0%

B. Shelling

Shelling of the seed ears will be made only after obtaining approval from the Certification Agency.

MAIZE (*Zea mays* L.) FOUNDATION SINGLE CROSSES

I. Application and Amplification of General Seed Certification Standards

A. The General Seed Certification Standards are basic and, together with the following specific standards constitute the standards for certification of the seeds of maize foundation single crosses.

B. The General Standards are amplified as follows to apply specifically to the foundation single crosses of maize:

1. *Eligibility requirements for certification*

A foundation single cross to be eligible for certification must be produced from two approved inbred lines, the sources of which shall assure their identity and is approved by the Certification Agency.

2. *Classes and Sources of Seed*

A foundation single cross shall consist of the first generation hybrid resulting from the controlled crossing of two approved inbred lines. Such foundation single cross shall be used in the production of double, three-way, top or double top crosses.

3. *Seed house or bin inspection*

The foundation single crosses shall be ear-inspected after maturity by the Certification Agency.

II. Land Requirements

Land to be used for seed production of maize single crosses shall be free of volunteer plants.

III. Field Inspection

A minimum of four inspections shall be made in such a way that one is done before flowering and the remaining three during flowering.

IV. Field Standards

A. *General requirements*

1. *Isolation*

(a) Seed fields shall be isolated from the contaminants shown in column 1 of the Table below by the distances specified in column 2 of the said Table :

<i>Contaminants</i>	<i>Minimum distance (meters)</i>
1	2
Fields of any maize with same kernel colour and texture	400
Fields of any maize with different kernel colour and texture, and teosinte	600
Fields of the same single cross (code designation) not conforming to varietal purity requirements for certification	400
Fields of the other single crosses having common male parent and conforming to varietal purity requirements for certification	5
Fields of the other single crosses having common male parent and not conforming to varietal purity requirements for certification	400

- (b) Differential blooming dates are permitted for modifying isolation distances, provided 5.0% or more of the plants in the seed parent do not have receptive silks when more than 0.20% of plants in the adjacent field(s) within the prescribed isolation distance are shedding pollen.

B. Specific requirements

<i>Factor</i>	<i>Maximum permitted(%)*</i>
Offtype plants that have shed or are shedding pollen in male parent at any one inspection during flowering when 5.0% or more of the plants in the seed parent have apparently receptive silks	0.20
Tassels of the plants that have shed or shedding pollen in seed parent at any one inspection during flowering when 5.0% or more of the plants in the seed parent have apparently receptive silks	0.50

Total of pollen shedding tassels including tassels that have shed pollens for all three inspections conducted during flowering on different dates.	1.0
Offtype plants in seed parent at final inspection	0.20

*Sucker tassels, portions of tassels and tassels on main plants shall be counted as shedding pollen only when two inches or more of the centre spike, the side branches, or a combination of the two have the anthers exserted from the glumes and are shedding pollen.

V. Seed Standards

A. Seed ears inspected after harvest shall not contain in excess of 0.20% of offtype ears including ears with off-coloured kernels.

Factor	Standard
Pure seed (minimum)	98.0%
Inert matter (maximum)	2.0%
Other crop seeds (maximum)	5/kg
Other distinguishable varieties based on kernel colour and texture (maximum)	5/kg
Weed seeds (maximum)	None
Germination (minimum)	80%
Moisture (maximum)	12.0%
For vapour-proof containers (maximum)	8.0%

B. Shelling

Shelling of the seed ears will be made only after obtaining approval from the Certification Agency.

MAIZE (*Zea mays* L.) HYBRIDS

1. Application and Amplification of General Seed Certification Standards

A. The General Seed Certification Standards are basic and, together with the following specific standards constitute the standards for certification of hybrid maize seed.

B. The General Standards are amplified as follows to apply specifically to the hybrids of maize:

1. *Eligibility requirements for certification*

(a) A hybrid is one to be planted for any use except seed production. It may be any one of the following:

- (i) *Single cross*—the first generation resulting from the controlled crossing of two approved inbred lines.
- (ii) *Double cross*—the first generation resulting from the controlled crossing of two certified single crosses.
- (iii) *Three-way cross*—the first generation resulting from the controlled crossing of an approved inbred line and a certified single cross.
- (iv) *Top cross*—the first generation resulting from the controlled crossing of an approved inbred line and a certified open-pollinated variety.
- (v) *Double top cross*—the first generation resulting from the controlled crossing of a certified single cross and a certified open-pollinated variety.

2. *Classes and Sources of certified seed*

- (a) Only the class 'certified' shall be recognised.
- (b) A hybrid to be certified must be produced from certified foundation seed or seed stocks approved by the Certification Agency.

3. *Seed house or bin inspection*

Maize hybrids shall be ear-inspected after maturity by the Certification Agency.

II. Land Requirements

Land to be used for seed production of hybrid maize shall be free of volunteer plants.

III. Field Inspection

A minimum of four inspections shall be made in such a way that one is made before flowering and the remaining three during flowering.

IV. Field Standards

A. General requirements

1. Isolation

(a) A specific hybrid of maize shall be isolated from the contaminants shown in column 1 of the Table below by the distances specified in column 2 of the said Table:

<i>Contaminants</i>	<i>Maximum distance (meters)</i>
1	2
*Fields of any maize with same kernel colour and texture	200
Fields of any maize with different Kernel colour and texture, and teosinte	300
*Fields of the same hybrid (code designation) not conforming to varietal purity requirements for certification	200
*Fields of the other hybrids having common male parent and conforming to varietal purity requirements for certification	5
*Fields of the other hybrids having common male parent not conforming to varietal purity requirements for certification	200

*Distances less than 200 meters may be modified by planting border rows of male parent, if the kernel colour and texture of the contaminant are the same as that of the seed parent. The number of border rows to be planted all around the seed field to modify isolation distances less than 200 meters shall be determined by the size of the field and its distance from the contaminant as shown in the Table below:

When the field area (in hectares) growing the concerned seed parent is:								Then the mi- nimum number of border rows re- quired is:
More than: Upto: 4	4	6	8	10	12	14	16 or over	
And the distance (in meters) of the seed parent from other maize with kernel colour and texture the same as that of the seed parent is at least:								
200.0	195.0	190.0	185.0	180.0	175.0	170.0	165.0	1
187.5	182.5	177.5	172.5	167.5	162.5	157.5	152.5	2
175.0	170.0	165.0	160.0	155.0	150.0	145.0	140.0	3
162.5	157.5	152.5	147.5	142.5	137.5	132.5	127.5	4
150.0	145.0	140.0	135.0	130.0	125.0	120.0	115.0	5
137.5	132.5	127.5	122.5	117.5	112.5	107.5	102.5	6
125.0	120.0	115.0	110.0	105.0	100.0	95.0	90.0	7
112.5	107.5	102.5	97.5	92.5	87.5	82.5	77.5	8
100.0	95.0	90.0	85.0	80.0	75.0	70.0	65.0	9
87.5	82.5	77.5	72.5	67.5	62.5	57.5	52.5	10
75.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	11
62.5	57.5	52.5	47.5	42.5	37.5	32.5	27.5	12
50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	13

This table applies to all sides of the seed field exposed to contamination, whether located directly opposite or diagonally.

- (b) Border rows must be planted in the seed field or adjacent to it, but in no case separated by more than five meters from the seed field.
- (c) Border rows must be planted at the same time as the rest of the seed field so that the flowering time of both is the same; i.e., border rows should be shedding pollen when silks in the seed parent are receptive.
- (d) Border rows must be planted all along and opposite to the contaminating maize.
- (e) There should be a reasonable stand of border rows; i.e., there must not be gaps in the border rows. Border rows must have been planted using the seed rate and spacing adopted for the seed crop.
- (f) The area planted under border rows is taken into consideration while modifying the isolation distance.

- (g) Seed fields having diagonal exposure to contaminating fields are to be planted with border rows in both directions of exposure.
- (h) If two hybrid seed fields with different pollinator parents are within the isolation distance of one another, border rows are necessary for each of them in order to avoid contamination of the respective seed parent.
- (i) Natural barriers such as tall thick trees, buildings etc., between the seed and contaminating fields shall not be a substitute to border rows.
- (j) Border rows must be planted with seed used for planting male rows in the seed field. Seed saved from male rows of the previous production of the same cross cannot be used for planting of border rows or for planting within the isolation distance.
- (k) The isolation distance continues to be 300 meters if the kernel colour or texture of the contaminating maize is different from that of the seed parent or if the contaminating field is planted with sweetcorn, popcorn or teosinte. In this case modification of isolation distance by planting border rows will not be permitted.
- (l) Differential blooming dates are permitted for modifying isolation distances, provided 5.0% or more of the seed parent plants do not have receptive silks when more than 0.50% of plants in the field(s) within the isolation distance are shedding pollen.

B Specific Requirements

<i>Factor</i>	<i>Maximum permitted (%)*</i>
Offtype plants that have shed or are shedding pollen in male parent at any one inspection during flowering when 5.0% or more of the plants in the seed parent have receptive silks	0.50
Tassels of the plants that have shed or are shedding pollen in seed parent at any one inspection during flowering when 5.0% or more of the plants in the seed parent have receptive silks	1.00
Total of pollen shedding tassels including tassels that have shed pollens for all three inspections conducted during flowering on different dates	2.0

Offtype plants in seed parent at final inspection	0.50
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*Sucker tassels, portions of tassels, and tassels on main plants will be counted as shedding pollen only when two inches or more of the centre spike, the side branches, or a combination of the two have the anthers exserted from the glumes and are shedding pollen.

V. Seed Standards

A. Seed ears inspected after harvest shall not contain in excess of 0.50% of offtype ears including the ears with off-coloured kernels.

Factor	Standard
Pure seed (minimum)	98.0%
Inert matter (maximum)	2.0%
Other crop seeds (maximum)	10/kg
Other distinguishable varieties based on kernel colour and texture (maximum)	10/kg
Weed seeds (maximum)	None
Germination (minimum)	90%
Moisture (maximum)	12.0%
For vapour-proof containers (maximum)	8.0%

B. Shelling

Shelling of the seed ears will be made only after obtaining approval from the Certification Agency.

MAIZE (*Zea mays L.*) COMPOSITES, SYNTHETICS AND OPEN-POLLINATED VARIETIES

I. Application and Amplification of General Seed Certification Standards

A. The General Seed Certification Standards are basic and, together with the following specific standards constitute the standards for certification of the seeds of composites, synthetics and open-pollinated varieties of maize.

B. The General Standards are amplified as follows to apply specifically to composites, synthetics and open-pollinated varieties of maize:

1. *Eligibility requirements for certification*

A composite or a synthetic or an open-pollinated variety to be eligible for certification must be from a source such that its identity may be assured and approved by the Certification Agency.

2. *Seed house or bin inspection*

Composites, synthetics and open-pollinated varieties of maize shall be ear-inspected after maturity by the Certification Agency.

II. Land Requirements

Land to be used for seed production of maize composites, synthetics and open-pollinated varieties shall be free of volunteer plants.

III. Field Inspection

A minimum of two inspections shall be made in such a way that one is conducted before flowering and the other during flowering.

IV. Field Standards

A. *General requirements*

1. *Isolation*

The seed fields shall be isolated from the contaminants shown in column 1 of the Table below by the distances specified in columns 2 and 3 of the said Table:

<i>Contaminants</i>	<i>Minimum distance (meters)</i>	
	<i>Foundation</i>	<i>Certified</i>
1	2	3
Fields of other varieties	400	200
Fields of the same variety not conforming to varietal purity requirements for certification and teosinte	400	200

B. Specific requirements

<i>Factor</i>	<i>Maximum permitted (%)</i>	
	<i>Foundation</i>	<i>Certified</i>
Offtype plants that have shed or are shedding pollen at any one inspection during flowering when 5.0% or more of the plants in the seed field have receptive silks	1.0	1.0

V. Seed Standards

A. Seed ears inspected after harvest shall not contain in excess of 1.0% of offtype ears including the ears with off-coloured kernels.

<i>Factor</i>	<i>Standards for each class</i>	
	<i>Foundation</i>	<i>Certified</i>
Pure seed (minimum)	98.0%	98.0%
Inert matter (maximum)	2.0%	2.0%
Other crop seeds (maximum)	5/kg	10/kg
Other distinguishable varieties based on kernel colour and texture (maximum)	10/kg	20/kg
Weed seeds (maximum)	None	None
Germination (minimum)	90%	90%
Moisture (maximum)	12.0%	12.0%
For vapour-proof containers (maximum)	8.0%	8.0%

B. Shelling

Shelling of the seed ears is to be done after obtaining approval from the Certification Agency.

SORGHUM (*Sorghum bicolor* L.) (Moench) OPEN-POLLINATED VARIETIES (Grain and dual-purpose)

I. Application and Amplification of General Seed Certification Standards

The General Seed Certification Standards are basic and, together with the following specific standards constitute the standards for certification of the seeds of open-pollinated varieties of sorghum.

II. Land Requirements

Land to be used for seed production of sorghum open-pollinated varieties shall be free of volunteer plants.

III. Field Inspection

A minimum of three inspections shall be made as follows:

- (1) the first inspection shall be made before flowering in order to verify isolation, volunteer plants, and other relevant factors;
- (2) the second inspection shall be made during flowering to check isolation, offtypes and other relevant factors;
- (3) the third inspection shall be made at maturity and prior to harvesting to verify true nature of plant and other relevant factors.

IV. Field Standards

A. General requirements

1. Isolation

(a) Seed fields shall be isolated from the contaminants shown in column 1 of the Table below by the distances specified in columns 2 and 3 of the said Table:

Contaminants	Minimum distance (meters)	
	Foundation	Certified
1	2	3
Fields of other varieties of grain and dual-purpose sorghum	200	100

	1	2	3
Fields of the same variety not conforming to varietal purity requirements for certification		200	100
Johnson grass (<i>Baru</i>) (<i>Sorghum halepense</i> (L.) Pers.)		400	400
Forage sorghum with high tillering and grassy panicle		400	400

(b) Differential blooming dates for modifying isolation distances are not permitted.

B. Specific requirements

Factor	<i>Maximum permitted(%)</i>	
	<i>Foundation</i>	<i>Certified</i>
Offtypes at any one inspection at and after flowering	0.050	0.10
*Heads infected by kernel smut or grain smut (<i>Sphacelotheca sorghi</i> (Link) Clinton) and Head smut (<i>Sphacelotheca reiliana</i> (Kuhn.) Clinton) at final inspection	0.050	0.10

*Seed fields can, however, be certified if diseased earheads are removed and burnt and the fields show, on re-inspection, infection not more than maximum permissible level. Only one such re-inspection is permitted.

Note: Seed fields should be thoroughly rogued to remove plants infected by sugary disease (*Sphacelia sorghi* Mc Rae)/ergot (*Claviceps* spp.) so that the prescribed standards are met at seed stage. However, the seed fields shall not be rejected on account of the presence of sugary/ergot infected heads.

V. Seed Standards

Factor	Standards for each class	
	Foundation	Certified
Pure seed (minimum)	98.0%	98.0%
Inert matter (maximum)	2.0%	2.0%
Other crop seeds (maximum)	5/kg	10/kg
Weed seeds (maximum)	5/kg	10/kg
Other distinguishable varieties (maximum)	10/kg	20/kg
Ergot (<i>Claviceps spp.</i>), sclerotia, seed entirely or partially modified as sclerotia, broken sclerotia or ergotted seed (<i>Sphacelia sorghi</i> Mc Rae & <i>Claviceps spp.</i>) (maximum)	0.020% (by number)	0.040% (by number)
Germination (minimum)	75%	75%
Moisture (maximum)	12.0%	12.0%
For vapour-proof containers (maximum)	8.0%	8.0%

SORGHUM (*Sorghum bicolor* (L.) Moench) HYBRIDS

I. Application and Amplification of General Seed Certification Standards

A. The General Seed Certification standards are basic and, together with the following specific standards constitute the standards for certification of hybrid sorghum seed.

B. The General Standards are amplified as follows to apply specifically to the hybrids of sorghum:

1. Eligibility requirements for certification

- (a) An inbred line to be eligible for certification shall be from a source such that its identity may be assured and approved by the Certification Agency.
- (b) Hybrid seed to be eligible for certification shall be the progeny of two approved inbred lines, one of which shall be male sterile.

2. Classes and Sources of seed

- (a) An inbred line shall be a relatively true breeding strain resulting from self-pollination with selection.
- (b) The foundation class seed shall consist of an approved male sterile line to be used as a female parent and an approved inbred line to be used as a male parent for the purpose of producing hybrid seed.
- (c) A male sterile line shall be a strain (A) carrying cytoplasmic-genetic male sterility, which sheds no viable pollen and is maintained by the normal sister strain (B) which is used as pollinator.
- (d) The certified class seed shall be the hybrid seed to be planted for any use except seed production.

II. Land Requirements

Land to be used for seed production of hybrid sorghum shall be free of volunteer plants.

III. Field Inspection

A minimum of four inspections shall be made as follows:

- (1) the first inspection shall be made before flowering in order to verify isolation, volunteer plants, outcrosses, planting ratio, errors in planting and other relevant factors;
- (2) the second and third inspections shall be made during flowering to check isolation, offtypes, pollen shedders, and other relevant factors;
- (3) the fourth inspection shall be made at maturity and prior to harvesting to verify the true nature of plant and other relevant factors.

IV. Field Standards

A. General requirements

1. Isolation

(a) Hybrid sorghum seed fields shall be isolated from the contaminants shown in column 1 of the Table below by the distances specified in columns 2 and 3 of the said Table :

Contaminants	Minimum distance (meters)		
	Foundation	Certified	
1	2	3	
Fields of other varieties of grain and dual-purpose sorghum including commercial hybrid of the same variety	300	200	
Fields of the same hybrid (code designation) not conforming to varietal purity requirements for certification	300	200	
Fields of other hybrids having common male parent and conforming to varietal purity requirements for certification	—	—	5
Fields of other hybrids having common male parent but not conforming to varietal purity requirements for certification	—	—	200

	1	2	3
Johnson grass (<i>Baru</i>) (<i>Sorghum halepense</i> (L.) Pers.)		400	400
Forage sorghum with high tillering and grassy panicle		400	400

(b) Differential blooming dates for modifying isolation distances are not permitted.

B. Specific requirements

Factor	Maximum permitted(%)	
	Foundation	Certified
Offtypes in seed parent at any one inspection at and after flowering	0.050	0.10
Offtypes in pollinator at any one inspection at and after flowering	0.050	0.10
Pollen shedding heads in seed parent at any one inspection at flowering	0.050	0.10
*Heads infected by kernel smut or Grain smut (<i>Sphacelotheca sorghi</i> (Link) Clinton.) and Head smut (<i>Sphacelotheca reiliana</i> (Kuhn) Clinton.) in seed parent at final inspection	0.050	0.10

*Seed fields can, however, be certified if diseased earheads are removed and burnt and the fields show, on re-inspection, infection not more than the maximum permissible level. Only one such re-inspection is permitted.

Note: Seed fields should be thoroughly rogued to remove plants infected by sugary disease (*Sophacelia sorghi* Mc Rae)/ ergot (*Claviceps* spp.) so that the prescribed standards are met at seed stage. However, the seed fields shall not be rejected on account of the presence of sugary/ergot infected heads.

V. Seed Standards

Factor	Standards for each class	
	Foundation	Certified
Pure seed (minimum)	98.0%	98.0%
Inert matter (maximum)	2.0%	2.0%
Other crop seeds (maximum)	5/kg	10/kg
Weed seeds (maximum)	5/kg	10/kg
Other distinguishable varieties (maximum)	10/kg	20/kg
Ergot (<i>Claviceps spp.</i>), sclerotia, seed entirely or partially modified as sclerotia, broken sclerotia or ergotted seed (<i>Sphacelia sorghi</i>)		
Mc Rae & <i>Claviceps spp.</i> (maximum)	0.020% (by number)	0.040% (by number)
Germination (minimum)	75%	75%
Moisture (maximum)	12.0%	12.0%
For vapour-proof containers (maximum)	8.0%	8.0%

PEARL MILLET (Bulrush Millet, Spiked Millet), (*Pennisetum americanum* (L) Leek) Composites, Synthetics and Open-Pollinated Varieties

I. Application and Amplification of General Seed Certification Standards

The General Seed Certification Standards are basic and, together with the following specific standards constitute the standards for certification of the seeds of pearl millet open-pollinated varieties.

II. Land Requirements

Land to be used for seed production of pearl millet open-pollinated varieties should be free of volunteer plants.

III. Field Inspection

A minimum of three inspections shall be made as follows:

- (1) the first inspection shall be made before flowering preferably within 30 days after planting to determine isolation, volunteer plants, offtypes, downy mildew incidence and other relevant factors;
- (2) the second inspection shall be made during 50% flowering to check isolation, offtypes, downy mildew/green ear (*Sclerospora graminicola* (Sacc.) Schroet) and other relevant factors;
- (3) the third inspection shall be made at maturity and prior to harvesting and in order to determine the incidence of downy mildew/green ear disease, ergot, grain smut and to verify the true nature of plant and other relevant factors.

IV. Field Standards

A. General requirements

1. Isolation

- (a) Seed fields shall be isolated from the contaminants shown in column 1 of the Table below by the distances specified in columns 2 and 3 of the said Table.

Contaminants	Minimum distance (meters)	
	Foundation	Certified
1	2	3
Fields of other varieties	400	200
Fields of the same variety not conforming to varietal purity requirements for certification	400	200

(b) Differential blooming dates for modifying isolation distances are not permitted.

B. Specific requirements

Factor	Maximum permitted (%)	
	Foundation	Certified
Offtypes at any one inspection at and after flowering	0.050	0.10
*Plants infected by downy mildew/green ear (<i>Sclerospora graminicola</i> (Sacc.) Schroet) disease at any one inspection	0.050	0.10
**Ergotted earheads (<i>Claviceps microcephala</i> (Fr.) Tul.) at final inspection	0.020	0.040
***Earheads infected by grain smut (<i>Tolyposporium pannillariae</i> Brefeld and <i>T. senegalense</i> Speg.) at final inspection	0.050	0.10

*Complete stool shall be considered as one infected unit.

**Seed from such fields that have been reported to contain the ergot infection even within the prescribed limits at field stage shall be subjected to floatation treatment with brine to become eligible for certification.

***Seed fields with incidence of grain smut more than the maximum permissible level can, however, be certified if such seed is treated with an approved organo-mercurial fungicide not earlier than a month prior to its sowing.

V. Seed Standards

Factor	Standards for each class	
	Foundation	Certified
Pure seed (minimum)	98.0%	98.0%
Inert matter (maximum)	2.0%	2.0%
Other crop seeds (maximum)	10/kg	20/kg
Weed seeds(maximum)	10/kg	20/kg
Ergot sclerotia, seed entirely or partially modified as sclerotia, broken sclerotia, or erogotted seeds (maximum)	0.020% (by number)	0.040% (by number)
Germination (minimum)	75%	75%
Moisture (maximum)	12.0%	12.0%
For vapour-proof containers (maximum)	8.0%	8.0%

PEARL MILLET (Bulrush Millet, Spiked Millet) (*Pennisetum americanum* (L.) Leek) HYBRIDS

I. Application and Amplification of General Seed Certification Standards

A. The General Seed Certification Standards are basic and, together with the following specific standards constitute the standards for certification of hybrid pearl millet seed.

B. The General Standards are amplified as follows to apply specifically to the hybrids of pearl millet:

1. *Eligibility requirements for certification*

- (a) An inbred line to be eligible for certification shall be from a source such that its identity may be assured and approved by the Certification Agency.
- (b) Hybrid seed to be eligible for certification shall be the progeny of two approved inbred lines, one of which shall be male sterile.

2. *Classes and Sources of seed*

- (a) An inbred line shall be a relatively true breeding strain resulting from self-pollination with selection.
- (b) The foundation class seed shall consist of an approved male sterile line to be used as a female parent and an approved inbred line to be used as a male parent for the purpose of producing hybrid seed.
- (c) A male sterile line shall be a strain (A) carrying cytoplasmic-genetic male sterility, which sheds no viable pollen and is maintained by the normal sister strain (B) which is used as pollinator.
- (d) The certified class seed shall be the hybrid seed to be planted for any use except seed production.

II. Land Requirements

Land to be used for seed production of hybrid pearl millet shall be free of volunteer plants.

III. Field Inspection

A minimum of four inspections shall be made as follows:

- (1) the first inspection shall be made before flowering preferably within 30 days after planting in order to determine isolation, volunteer plants, outcrosses, planting ratio, errors in planting, incidence of downy mildew disease and other relevant factors;
- (2) the second and third inspections shall be made during flowering to check isolation, pollen shedders, offtypes, downy mildew/green ear and other relevant factors;
- (3) the fourth inspection shall be made at maturity and prior to harvesting in order to determine the incidence of downy mildew/green ear, ergot, grain smut, and to verify the true nature of plant and other relevant factors.

IV. Field Standards

A. General requirements

1. Isolation

(a) Seed fields shall be isolated from the contaminants shown in column 1 of the Table below by the distances specified in columns 2 and 3 of the said Table:

Contaminants	Minimum distance (meters)	
	Foundation	Certified
1	2	3
Fields of other varieties including commercial hybrid of the same variety	1000	200
Fields of the same hybrid (code designation) not conforming to varietal purity requirements for certification	1000	200
Fields of the other hybrids having common male parent and conforming to varietal purity requirements for certification	—	5

1	2	3
Fields of other hybrids having common male parent but not conforming to varietal purity requirements for certification		200

(b) Differential blooming dates for modifying isolation distances are not permitted.

B. Specific requirements

Factor	<i>Maximum permitted(%)</i>	
	Foundation	Certified
Offtypes in seed parent at any one inspection at and after flowering	0.050	0.10
Offtypes in pollinator at any one inspection at and after flowering	0.050	0.10
Pollen shedding heads in seed parent at any one inspection at flowering	0.050	0.10
*Plants infected by downy mildew/green ear disease (<i>Sclerospora graminicola</i> (Sacc.) Schroet.) in seed parent at any one inspection	0.050	0.10
@Plants infected by downy mildew/green ear disease (<i>Sclerospora graminicola</i> (Sacc.) Schroet.) in pollinator at any one inspection.	0.050	0.10
**Ergotted earheads (<i>Claviceps microcephala</i> (Fr.) Tul.) in seed parent at final inspection	0.020	0.040
@@Earheads infected by grain smut (<i>Tolyposporium penicillariae</i> Brefeld. and <i>T. senegalense</i> Speg.) in seed parent at final inspection	0.050	0.10

*@Complete stool shall be considered as one infected unit.

**Seed from such fields that have been reported to contain the ergot infection even within the prescribed limits at field stage shall be subjected to floatation treatment with brine to become eligible for certification.

@@Seed fields with incidence of grain smut more than the maximum permissible level can, however, be certified if such seed is treated with an approved organo-mercurial fungicide not earlier than a month prior to its sowing.

V. Seed Standards

Factor	Standards for each class	
	Foundation	Certified
Pure seed (minimum)	98.0%	98.0%
Inert matter (maximum)	2.0%	2.0%
Other crop seeds (maximum)	10/kg	20/kg
Weed seeds (maximum)	10/kg	20/kg
Ergot sclerotia, seeds entirely or partially modified as sclerotia, broken sclerotia, or ergotted seeds (maximum)	0.020% (by number)	0.040% (by number)
Germination (minimum)	75%	75%
Moisture (maximum)	12.0%	12.0%
For vapour-proof containers (maximum)	8.0%	8.0%

BARNYARD MILLET [*Echinochloa colona* [L.] Link]

I. Application and Amplification of General Seed Certification Standards

The General Seed Certification Standards are basic and, together with the following specific standards constitute the standards for certification of barnyard millet seed.

II. Land Requirements

Land to be used for seed production of barnyard millet shall be free of volunteer plants.

III. Field Inspection

A minimum of two inspections shall be made, the first during flowering and the second at maturity and prior to harvesting.

IV. Field Standards

A. General requirements

1. Isolation

Seed fields of barnyard millet shall be isolated from the contaminants shown in column 1 of the Table below by the distances specified in columns 2 and 3 of the said Table:

Contaminants	Minimum distance (meters)	
	Foundation	Certified
1	2	3
Fields of other varieties	3	3
Fields of the same variety not conforming to varietal purity requirements for certification	3	3

B. Specific requirements

Factor	Maximum permitted(%)*	
	Foundation	Certified
Offtypes	0.050	0.10

*Maximum permitted at final inspection.

V. Seed Standards

Factor	Standards for each class II	
	Foundation	Certified
Pure seed (minimum)	97.0%	97.0%
Inert matter (maximum)	3.0%	3.0%
Other crop seeds (maximum)	10/kg	20/kg
Weed seeds (maximum)	10/kg	20/kg
Germination (minimum)	75%	75%
Moisture (maximum)	12.0%	12.0%
For vapour-proof containers (maximum)	8.0%	8.0%

COMMON MILLET [PROSO MILLET, HOG MILLET] [*Panicum miliaceum* L.]

I. Application and Amplification of General Seed Certification Standards

The General Seed Certification Standards are basic and, together with the following specific standards constitute the standards for certification of common millet seed.

II. Land Requirements

Land to be used for seed production of common millet shall be free of volunteer plants.

III. Field Inspection

A minimum of two inspections shall be made, the first during flowering and the second at maturity and prior to harvesting.

IV. Field Standards

A. General requirements

1. Isolation

Seed fields of common millet shall be isolated from the contaminants shown in column 1 of the Table below by the distances specified in columns 2 and 3 of the said Table:

Contaminants	Minimum distance (meters)	
	Foundation	Certified
1	2	3
Fields of other varieties	3	3
Fields of the same variety not conforming to varietal purity requirements for certification	3	3

B. Specific requirements

Factor	Maximum permitted(%)*	
	Foundation	Certified
Offtypes	0.050	0.10

*Maximum permitted at final inspection.

V. Seed Standards

Factor	Standards for each class	
	Foundation	Certified
Pure seed (minimum)	97.0%	97.0%
Inert matter (maximum)	3.0%	3.0%
Other crop seeds (maximum)	10/kg	20/kg
Weed seeds (maximum)	10/kg	20/kg
Germination (minimum)	75%	75%
Moisture (maximum)	12.0%	12.0%
For vapour-proof containers (maximum)	8.0%	8.0%

FINGER MILLET [*Eleusine coracana* [L.] Gaertn]

I. Application and Amplification of General Seed Certification Standards

The General Seed Certification Standards are basic and, together with the following specific standards constitute the standards for certification of finger millet seed.

II. Land Requirements

Land to be used for seed production of finger millet shall be free of volunteer plants.

III. Field Inspection

A minimum of two inspections shall be made, the first during flowering and the second at maturity and prior to harvesting.

IV. Field Standards

A. General requirements

1. Isolation

Seed fields of finger millet shall be isolated from the contaminants shown in column 1 of the Table below by the distances specified in columns 2 and 3 of the said Table:

Contaminants	Minimum distance (meters)	
	Foundation	Certified
1	2	3
Fields of other varieties	3	3
Fields of the same variety not conforming to varietal purity requirements for certification	3	3

B. Specific requirements

Factor	Maximum permitted (%)*	
	Foundation	Certified
Offtypes	0.050	0.10

*Maximum permitted at final inspection.

V. Seed Standards

Factor	Standards for each class	
	Foundation	Certified
Pure seed (minimum)	97.0%	97.0%
Inert matter (maximum)	3.0%	3.0%
Other crop seeds (maximum)	10/kg	20/kg
Weed seeds (maximum)	10/kg	20/kg
Germination (minimum)	75%	75%
Moisture (maximum)	12.0%	12.0%
For vapour-proof containers (maximum)	8.0%	8.0%

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ITALIAN MILLET [Foxtail Millet]

[*Setaria italica* Beauv.]

1. Application and Amplification of General Seed Certification Standards

The General Seed Certification Standards are basic and, together with the following specific standards constitute the standards for certification of Italian millet seed.

II. Land Requirements

Land to be used for seed production of Italian millet shall be free of volunteer plants.

III. Field Inspection

A minimum of two inspections shall be made, the first during flowering and the second at maturity and prior to harvesting.

IV. Field Standards

A. General requirements

1. Isolation

Seed fields of Italian millet shall be isolated from the contaminants shown in column 1 of the Table below by the distances specified in columns 2 and 3 of the said Table.

Contaminants	Minimum distance (meters)	
	Foundation	Certified
1	2	3
Fields of other varieties	3	3
Fields of the same variety not conforming to varietal purity requirements for certification	3	3

B. Specific requirements

Factor	Maximum permitted(%)*	
	Foundation	Certified
Offtypes	0.050	0.10

*Maximum permitted at final inspection.

V. Seed Standards

Factor	Standards for each class	
	Foundation	Certified
Pure seed (minimum)	97.0%	97.0%
Inert matter (maximum)	3.0%	3.0%
Other crop seeds (maximum)	10/kg	20/kg
Weed seeds (maximum)	10/kg	20/kg
Germination (minimum)	75%	75%
Moisture (maximum)	12%	12.0%
For vapour-proof containers (maximum)	8.0%	8.0%

Minimum weight of each lot to be sent to each test house
and each lot must contain at least 100 g of seed to be tested.

Category	Minimum quantity (kg)	
	Foundation	Certified
A	5	5
B	5	5
C	5	5
D	5	5

KODO MILLET (*Paspalum scrobiculatum* L.)

I. Application and Amplification of General Seed Certification Standards

The General Seed Certification Standards are basic and, together with the following specific standards constitute the standards for certification of kodo millet seed.

II. Land Requirements

Land to be used for seed production of kodo millet shall be free of volunteer plants.

III. Field Inspection

A minimum of two inspections shall be made, the first during flowering and the second at maturity and prior to harvesting.

IV. Field Standards

A. General requirements

1. Isolation

Seed fields of kodo millet shall be isolated from the contaminants shown in column 1 of the Table below by the distances specified in columns 2 and 3 of the said Table:

Contaminants	Minimum distance (meters)	
	Foundation	Certified
1	2	3
Fields of other varieties	3	3
Fields of the same variety not conforming to varietal purity requirements for certification	3	3

B. Specific requirements

Factor	Maximum permitted (%)*	
	Foundation	Certified
Offtypes	0.050	0.10

*Maximum permitted at final inspection.

V. Seed Standards

Factor	Standards for each class	
	Foundation	Certified
Pure seed (minimum)	97.0%	97.0%
Inert matter (maximum)	3.0%	3.0%
Other crop seeds (maximum)	10/kg	20/kg
Weed seeds (maximum)	10/kg	20/kg
Germination (minimum)	75%	75%
Moisture (maximum)	12.0%	12.0%
For vapour-proof containers (maximum)	8.0%	8.0%

Classification of seed by quality (percentage)

Classification	1	2	3	4	5	6
Classification						
Classification						
Classification						
Classification						

LITTLE MILLET (*Panicum sumatrense* Roth. Ex.) Roem. & Schult (syn. *P. miliare* Lam.)

I. Application and Amplification of General Seed Certification Standards

The General Seed Certification Standards are basic and, together with the following specific standards constitute the standards for certification of little millet seed.

II. Land Requirements

Land to be used for seed production of little millet shall be free of volunteer plants.

III. Field Inspection

A minimum of two inspections shall be made, the first during flowering and the second at maturity and prior to harvesting.

IV. Field Standards

A. General requirements

1. Isolation

Seed fields of little millet shall be isolated from the contaminants shown in column 1 of the Table below by the distances specified in columns 2 and 3 of the said Table:

Contaminants	Minimum distance (meters)		
	Foundation	Certified	
1	2	3	
Fields of other varieties		3	3
Fields of the same variety not conforming to varietal purity requirements for certification		3	3

B. *Specific requirements*

<i>Factor</i>	<i>Maximum permitted(%)</i> *	
	<i>Foundation</i>	<i>Certified</i>
Offtypes	0.050	0.10

*Maximum permitted at final inspection.

V. **Seed Standards**

<i>Factor</i>	<i>Standards for each class</i>	
	<i>Foundation</i>	<i>Certified</i>
Pure seed (minimum)	97.0%	97.0%
Inert matter (maximum)	3.0%	3.0%
Other crop seeds (maximum)	10/kg	20/kg
Weed seeds (maximum)	10/kg	20/kg
Germination (minimum)	75%	75%
Moisture (maximum)	12.0%	12.0%
For vapour-proof containers (maximum)	8.0%	8.0%