

Kentucky Seed Certification Standards

HYBRID CORN

I. Explanation of General Standards as Applied to Corn Hybrids

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

B. Hybrid Corn seed may be any one of the following and can be planted for any use except seed production:

1. A single-cross, i.e. a first generation cross between two inbred lines.
2. A double-cross, i.e. the first generation of a cross between two single crosses.
3. A three-way cross, i.e. the first generation of a cross between a single-cross and inbred line.
4. A top-cross, i.e. the first generation of a cross between an inbred line and an open-pollinated variety, or the first generation of a cross between a single-cross and an open-pollinated variety.

II. Classes and Sources of Certified Seed

A. Only the class “certified” is recognized in hybrid corn.

B. A hybrid to be certified must be produced from certified foundation seed.

III. Land Requirements

There are not requirements as to the previous crop, but the land must be free of volunteer corn plants.

IV. Field Standards

A. **Inspection** – At least 3 field inspections shall be made by the Association during the pollinating period. Inspections will be made without previous notice to the grower. When the previous crop was corn, at least one additional inspection shall be made to verify that the field is sufficiently free of volunteer plants from the previous crop.

B. Isolation

1. A specific hybrid to be accepted for certification must be so located that the seed parent is not less than 660 feet from other corn of different color and texture (including all sweet corn). However, for the production of double cross hybrid corn, the distance may be reduced to 410 feet, if the contaminating field is of the same color and texture (sweet corn excepted) as the seed field. However, these distances may be modified when the contaminating field is of the same color and texture (except sweet corn) by the planting of border rows of the pollen parent. The number of border rows is shown in Table A for the production of double cross hybrid corn and in Table B for the production of single or 3-way crosses.

TABLE A

Minimum Distance of Ear-parent from Other Corn	Field Size	
	1-20 Acres	21+ Acres
<u>Feet</u>	<u>Minimum Border Rows Required</u>	
410	0	0
370	2	1
330	4	2
290	6	3
245	8	4
205	10	5
165	12	6
125	14	7
85	16	8
0	--	10

TABLE B
For Production of Single or 3-Way Cross Hybrid Corn

Number of Acres in the Crossing Field								# Border Rows
<u>0-10</u>	<u>11-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25-29</u>	<u>30-34</u>	<u>35-39</u>	<u>40+</u>	
Distance of the Ear Parent from Other Corn								
Ft	Ft	Ft	Ft	Ft	Ft	Ft	Ft	
660	645	625	610	595	580	560	545	0
620	600	585	570	550	540	520	500	1
580	560	545	520	510	495	480	460	2
540	520	500	485	470	450	435	420	3
495	480	460	445	430	415	395	380	4
455	435	420	400	385	370	355	340	5
410	395	380	365	345	330	315	295	6
370	355	340	320	300	285	270	255	7
330	315	295	280	265	245	230	215	8
290	270	255	240	225	205	190	175	9
245	230	215	200	180	165	150	130	10
205	190	175	155	140	125	105	90	11
165	150	130	115	100	85	65	50	12
125	110	90	75	60	40	25	20	13
85	70	50	30	20				14
40	30							15

2. Adequate natural barriers are permitted for modifying isolation distance.

3. Differential maturity dates are permitted for modifying isolation distances provided there are no receptive silks in the female parent at the same time as pollen is being shed in the contaminated field.

4. A specific hybrid to be accepted for certification must be so located that the seed parent is not less than 40 rods from the other corn of a different color or texture.

C. Detasseling – The following requirements apply only when 5% or more of the seed parent plants have receptive silks.

1. A hybrid will not be accepted for certification if more than 1.0 percent of the seed parent plants have shed pollen on any one inspection or if the total for three inspections on different dates exceeds 2.0 percent.

2. When more than one combination is being grown in the same isolation and the seed parent of one or more of them is shedding pollen in excess of 1.0 percent, all ear parents having 5 percent or more apparently receptive silks at the time will be disqualified, unless adequately isolated from the shedding seed parent.

3. Sucker tassels, portions of tassels or tassels on main plants will be counted when 2 inches or more of the central stem, the side branches or a combination of the two have the anthers extended from the glumes and are shedding pollen.

D. A male sterile ear parent can be used to produce certified hybrid corn seed by either of two methods.

1. Seed of the normal fertile ear parent must be mixed with the seed of the male sterile ear parent of the same pedigree, either by blending in the field at harvest or by size at processing time. The ratio of male sterile ear parent seed to normal ear parent seed shall not exceed 2:1.

2. The pollen parent must involve a certified pollen restoring line or lines, so that not less than one-third of the plants grown from hybrid corn seed produce pollen which appears to be normal in quantity and viability.

E. Other Varieties and Off-type Plants

1. Foundation Single Crosses and Foundation Backcrosses

a. A field in which more than 0.1 percent definitely off-type plants in the pollen parent have shed pollen will not be certified.

b. At the time of the last inspection, the seed parent shall not contain in excess of 0.1 percent definitely off-type plants.

2. Foundation Single Crosses, Foundation Backcrosses and Inbred Lines - Any plant shedding pollen in male sterile rows must be completely destroyed at pollination time to eliminate the possibility of its seed production.

3. Inbred Lines - A field which contains, at any one inspection, more than 0.1 percent of definitely off-type plants that have shed pollen or are shedding pollen when 5.0 percent or more of the plants in the field have receptive silks, shall not be certified.

4. Open-pollinated Varieties - There shall not be more than 0.5 percent detectable admixture with plants of other varieties.

F. **Unit of Certification** – A field or portion of a field may be passed for certification. That portion of a field not meeting the requirements may be harvested in any manner approved by the Kentucky Seed Improvement Association. If a field is harvested before inspection is made, it automatically becomes ineligible for certification.

V. Seed Standards

Pure Seed, minimum	98.00%
Inert Matter, maximum	2.00%
Weed Seed, maximum	None
Total Other Crop Seed, maximum	0.50%
Other Varieties or Color Mixture, maximum	0.50%
Other Kinds, maximum	None
Germination, minimum	90.00%

Excessive amounts of diseased, insect damaged, cracked or badly scuffed seed will be cause for refusal of certification.

Based upon field evaluations, winter growouts may be required for final certification.

Kentucky Seed Certification Standards

CORN-FOUNDATION SINGLE CROSSES

I. **Explanation of General Standards as Applied to Single Crosses**

A. The General Seed Certification Standards as adopted are basic and, together with the following specific standards, constitute the standards of certification of foundation single-cross seed corn.

B. The General Standards are further defined as follows to apply specifically to Foundation Single-Crosses:

1. Eligibility Requirements for Certification of Crop Varieties - Foundation single-crosses to be eligible for certification must be produced from approved inbred lines whose source assures their identity.

2. Classes and Source of Certified Seed

a. Only the class certified is recognized.

b. A foundation single-cross shall consist of the first generation of a hybrid between two inbred lines to be used in the production of hybrids containing more than two inbred lines. Advanced generation single-cross seed will be eligible for use in production commercial hybrids when approved by the Kentucky Agricultural Experiment Station and the Association.

3. Seed Inspection - Foundation single-crosses shall be ear-inspected after maturity.

C. Additional Requirements for Fertility Restoring Lines - A fertility restoring line may be substituted for its non-restoring counterpart in a foundation single-cross, provided the fertility restoring line is the same in other observable characteristics as its non-restoring counterpart.

II. **Land Requirements** - The land must be free of volunteer corn plants.

III. **Field Inspections** - At least four field inspections shall be made just preceding and during the pollination period.

IV. Field Standards

A. General requirements

1. Unit of Certification - The entire acreage of any one specific foundation single-cross grown by and/or belonging to one applicant must be eligible and must be inspected for certification. All seed from rejected fields or portion of fields must be disposed of so that it cannot be used for production of commercial hybrids.

2. Isolation - A specific foundation single-cross field involving male sterile or fertile material shall be so located that the ear parent is not less than 1000 feet from other corn, except no isolation is required for the increase of hand-pollinated seed. In fertile single-cross seed production, the following exceptions may be considered provided the contaminating field is of the same color and texture:

a. Adequate natural barriers are permitted to modifying isolation distances.

b. Different maturity dates may permit modification of isolation distances, provided there are no receptive silks in the ear parent at the time pollen is being shed in the nearby field.

B. Specific Requirements

1. Detasseling - The following requirements apply when five (5) percent or more of the ear plants have apparently receptive silks:

a. A foundation single-cross will not be accepted for certification if at any one inspection more than one (1) percent of the ear plants are shedding pollen or if the total number found shedding on any two or three inspections on different dates exceed two (2) percent.

b. When more than one single-cross is being grown in the same isolation and the ear parent of one or more of them is shedding pollen in excess of one (1) percent, all ears of the ear parents having five (5) percent or more apparently receptive silks at that time will be disqualified.

c. Sucker tassels, portions of tassels, or tassels on main plants are to be counted when two (2) inches or more of the central stem, the side branches or a combination of the two have the anthers extended from the glumes and are shedding pollen.

2. Male Sterile Parent - Any plant shedding pollen in male sterile rows must be completely destroyed at pollination time to eliminate seed production.

3. Off-type Plants

a. A field in which more than one-tenth (0.1) percent definitely off-type or more than two (2) percent doubtful-type plants in the pollen parent are shedding pollen will not be eligible for certification.

b. At the time of the last inspection the ear parent shall not contain in excess of one-tenth (0.1) percent of definitely off-type ears or more than two-tenths (0.2) percent doubtful-type ears with off-colored kernels.

V. Seed Standards

A. Seed ears of foundation single-cross shall be inspected after maturity. They shall not contain in excess of one-tenth (0.1) percent of definitely off-type ears or more than two-tenths (0.2) percent doubtful-type ears with off-colored kernels.

B. Seed of foundation single-crosses need not meet a minimum pure seed, germination, or grading requirement.

C. The processed shelled grain shall not contain more than one-tenth (0.1) percent off-type kernels or more than two (2) percent doubtful-type kernels.

D. Samples from each lot of single-cross seed carrying the sterile-restorer factor must be grown out to determine its sterility prior to being used in the production of hybrid seed corn.

Kentucky Seed Certification Standards

CORN – INBRED LINES

I. Explanation of General Standards as Applied to Inbred Lines

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

B. The General Standards are further defined as follows to apply specifically to inbred lines of corn:

1. Eligibility Requirements for Certification of Crop Varieties:

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

b. An inbred line to be certified shall not be more than two seed increases removed from hand-pollinated seed.

c. A privately controlled inbred line must be distinguishable in appearance from other inbred lines developed by State or Federal Agencies which have been used in regional tests and/or in the production of open-pedigree hybrids or those developed by other private agencies and accepted for certification; or if indistinguishable, a cross between the two lines in question must yield at least 40% more than the average comparable yield of the two parents.

2. Classes and Sources of Certified Seed

a. An inbred line must be a relatively true breeding strain of corn resulting from at least five (5) successive generations of controlled self-fertilization or of backcrossing to a recurrent parent with selection or its equivalent.

b. Only the class certified is recognized.

c. Additional requirements for fertility restoring lines:

(1) A recovered fertility restoring inbred line must have been backcrossed to its recurrent parent with selection for fertility restoration relative to a specific cytoplasmic sterile source for not less than five (5) generations.

(2) Proof of the fertility restoring ability of the line will be supplied by the originator.

(3) A fertility restoring line may be substituted for its non-restoring counterpart in a foundation single-cross, provided the fertility restoring line is the same in other observable characteristics as its non-restoring counterpart.

3. Seed Inspections – Inbred lines shall be ear-inspected after maturity.

II. **Land Requirements** – The land must be free of volunteer corn.

III. **Field Inspections** – At least four field inspections shall be made. One inspection shall be made just preceding and the other during the pollination period.

IV. **Field Standards**

A. **General Requirements**

1. Unit of Certification – The entire acreage of any one inbred line grown by and/or belonging to one applicant must be eligible and be inspected for certification. All seed from rejected fields or portions of fields must be disposed of, so that it cannot be used for seed purposes.

2. Isolation - An increase field of a male sterile or fertile inbred line must be so located that it is not less than 1000 feet from any other kind of corn. In case of fertile inbred line increase, the following exceptions may be considered provided the contaminating field is of the same color and texture.

a. Adequate natural barriers are permitted for modifying isolation distances.

b. Different maturity dates may modify isolation distances, provided there are no apparent receptive silks in the inbred line at the time pollen is being shed in the nearby field.

B. **Specific Requirements**

1. A field which contains at the time of any one inspection more than one-tenth (0.10) percent of definitely off-type, more than two (2) percent of doubtful-type plants that have shed pollen, or where five (5) percent or more of the plants in the isolation have apparently receptive silks shall not be eligible for certification.

2. Sucker tassels, portions of tassels and tassels on main plants will be counted when two inches or more of the exposed central stem, the side branches, or a combination of the two have the anthers extended from the glumes and are shedding pollen.

3. Any plant shedding pollen in male sterile rows must be completely destroyed at pollinating time to eliminate its seed production.

V. Seed Standards

A. Inbred lines shall be inspected on the ear after harvest. At that time they shall not contain more than one-tenth (0.1) percent of definitely off-type ears, nor more than two (2) percent of doubtful-type ears. The shelled processed grain shall not contain more than one-tenth (0.1) percent of off-type kernels, nor more than two (2) percent of doubtful-type kernels.

B. Inbred lines need not meet a minimum pure seed, germination or grading requirements.

