

## Notes on Standards and Seed Classes<sup>1</sup>

### Field Standards

**Rotation:** The number of years that must elapse between the first and second planting of different varieties of the same species on the same land to avoid contamination through volunteer plants from the previous season

**Isolation:** The distance required in meters between different varieties of the same species grown at the same time to avoid contamination. The isolation distance is usually smaller for self-pollinating crops compared to cross-pollinated crops unless specified for certain seed-borne disease.

**Other Varieties:** Maximum number of heads or plants of other varieties permitted in a fixed number of plants or a specified area during field inspection. Figures are usually given in percent (e.g. 0.05%), but sometimes as a ratio in a fixed number of plants (e.g. 1/1000) or seldom as a number in a specified area (e.g. 1/100m<sup>2</sup>). Figures may include offtypes which deviate from the original population of the variety.

**Other Species:** Maximum number of other varieties species (crops) permitted in a fixed number of plants or a specified area. Figures are usually given in percent (e.g. 0.05%), but sometimes as a ratio in a fixed number of plants (e.g. 1/1000) or seldom as a number in a specified area (e.g. 1/25m<sup>2</sup>). Figures may include offtypes which deviate from the original population of the variety.

**Noxious Weeds:** Maximum number of noxious or objectionable weed plants permitted in a fixed number of plants or a specified area. Figures are usually given in percent (e.g. 0.01%), but sometimes as a ratio in a fixed number of plants (e.g. 1/1000) or seldom as a number in a specified area (e.g. 1/50m<sup>2</sup>). These include parasitic, objectionable and noxious weeds and depend on the seed crop in question.

**Infected Plants:** Maximum number of diseased plants permitted in a fixed number of plants or a specified area. Figures are usually given in percent (e.g. 0.01%), but sometimes as a ratio in a fixed number of plants (e.g. 1/1000) or seldom as a number in a specified area (e.g. 1/50m<sup>2</sup>). Diseased plants are those infected by seed-borne pathogens and depend on the seed crop in question.

### Seed Standards

**Pure Seed:** Minimum percentage of pure seed fraction in analytical purity test which conforms to the seed crop and may include the botanical varieties.

**Other Crop Seeds:** Maximum percent by weight of other crop seeds (and sometimes distinguishable other varieties) in analytical purity test. Some standards also prescribe other crop seeds whose seed is inseparable from the main crop in number of seeds in specific quantity of seed (number of seeds/kg). Seed schemes prescribe one or both standards based on the seed crop and the importance of the problem.

**Weed Seeds:** Maximum percent by weight of common weed seeds in analytical purity test,

Some standards also prescribe objectionable or noxious weed seeds in number of seeds in specific quantity of seed (number of seeds/kg). Seed schemes prescribe one or both standards based on the seed crop and the importance of the problem

**Infected Seeds:** Maximum percent of infected seeds in a germination test. But sometimes the number of infected seeds, bunt balls or ergot sclerotia where applicable, in a fixed quantity of seed is prescribed.

**Germination:** Minimum percentage of germination of the seed lot has to maintain before it is certified for further multiplication or distribution.

**Moisture Content:** Maximum percentage of moisture content allowed on fresh weight basis of seed.

**Specific gravity:** Minimum hecto-liter weight of seed of one kg for small grain cereals such as wheat and barley

### **Seed Classes**

Seed production follows a generation system and a seed, which is sold to farmers, originates from a known source (breeder seed). Two different schemes exist, which vary in nomenclature, whereas the procedures are essentially the same. Under the Organization for Economic Cooperation and Development (OECD) scheme breeder, pre-basic, basic and certified seed classes are recognized, whereas in the Association of Official Seed Certifying Agencies (AOSCA) system four classes are recognized; namely: breeder, foundation, registered and certified seed. Some countries use different names but with similar procedures.

**Breeder Seed** is the initial source of seed and usually produced by the breeder. It is the source for the production pre-basic or basic seed

**Pre-basic Seed** is the progeny of the breeder seed and usually produced under the supervision of a breeder or his designated agency.

**Basic Seed** is the progeny of breeder or pre-basic seed and usually produced under the supervision of a breeder or his designated agency and under the control of a seed quality control agency.

**Certified Seed** is the progeny of basic seed and produced on contract with selected seed growers under the supervision of the seed enterprise, public or private. Certified seed can be used to produce further generations of certified seed or can be planted by farmers for grain production.

**Approved Seed** is the progeny of the Certified Seed grown in quarantined and isolated areas, to be produced and distributed by various agencies so designated and approved by the Federal Seed Certification and Registration Department (applies in Pakistan only).

**Truthfully-labeled Seed** is produced under Seeds (Truth-in-Labeling) Rules, 1991 where seed offered for market should meet minimum purity (%), other crop/weed seeds (%),

objectionable/noxious weed seeds (%) and germination (%) requirement specified in the regulation (applies in Pakistan only).

**Commercial/Standard Seed** is seed that may be produced from later generation of certified seed but may not be certified and follow a generation system.

- <sup>1</sup> Empty spaces in the tables indicate no field or seed standards specified. None refers to zero level contamination.