Importance of Quality Seed

Quality seed is the basic and most critical input for sustainable agriculture and a steady availability of quality seed is necessary for the correct functioning of agricultural production. The response of all other inputs depends on quality of seeds to a large extent. It is estimated that the direct contribution of quality seed alone to the total production is about 20 per cent depending upon the crop and management of other inputs. A strong positive correlation exists between Seed Replacement Rate (SRR) and productivity, elucidating the importance of regularly replacing seed for new quality seed. Estimated commercial world seed market is around 45 billion USD and Indian seed market is around 2 billion USD. Indian seed market is the 6 largest market in the world (2013). The distribution of certified/quality seed in India reaches all time high at the level of 380 lakh quintals (2016-17). Through the supply of quality seed, Indian seed programme could play an important role in sustained agricultural production. The private seed companies are mostly concentrating on production of varieties/ hybrids in high value- low volume crops and garnering maximum share in the domestic seed market. The public sector produces and distributes high quality seeds of high volume- low value crops for the resource farmers.

Why quality seed:

1. Seed alone contributes around 15-20 per cent in total production
2. Varietal purity is known
3. Higher productivity, absence of other crop seeds and certain diseases
4. It is scientifically processed, treated, packed and labelled with proper lot identity
5. Seed is tested for planting qualities viz. germination, purity admixture of weed seed and other crop seeds, seed health and seed moisture content

How to Seed is differ from the Grain:

The distinction between seed and grain is vital, being of seminal importance to agriculture. A seed, strictly speaking, is an "embryo" a living organism embedded in the supporting or the food storage tissue. The seed pertains to

material (seed, fruit or vegetative propagating materials meant for saving for planting purposes, the essential function being the reproduction. The seed when scientifically produced (such as under seed certification) is distinctly superior in terms of seed quality, namely, the improved variety, varietal purity, freedom from admixtures of weeds and other crop seeds, seed health, high germination and vigour, seed treatment and safe moisture content etc. A grain on the other hand, includes cereals and pulses meant for human consumption.

Differences between Seed and Grain

Sr.No.	Seed	Grain
1.	It is the result of well planned seed programme	It is the part of commercial produce saved for sowing or planting purposes
2.	It is the result of sound scientific knowledge, organized effort, investment on processing, storage and marketing facilities.	No such knowledge or effort is required
3.	The pedigree of the seed is ensured. It can be Its varietal purity is unknown No such effort is made. Hence, the related to the initial breeder's seed	Its varietal purity is unknown
4.	During production, effort is made to rogue out off-types, diseased plants, objectionable weeds and other crop plants at appropriate stages of crop growth which ensures satisfactory seed purity and health.	No such effort is made. Hence, the purity and health status may be inferior
5.	The seed is scientifically processed, treated and packed and labeled with proper lot identity.	The grain used as seed may be manually cleaned. In some cases, prior to sowing it may also be treated. This is not labeled
6.	The seed is tested for planting quality namely, germination, purity, admixture of weed seeds and other crop seeds, seed health and seed moisture content.	Routine seed testing is not done.
7.	The seed quality is usually supervised by an agency not related with production (seed certification agency)	There is no quality control
8.	The seed has to essentially meet the "quality standards". The quality is therefore well known. The labels, certification tags on the seed containers serves as quality marks.	No such standards apply here. The quality is non-descript and not known.

Seed Quality:

Seed quality is the possession of seed with required genetic and physical purity that is accompanied with physiological soundness and health status.

Thompson (1979) defined seed quality as a multiple concept comprising several components and their relative importance in different circumstances and laid much emphasis on

1. Analytical purity/physical purity
2. Species purity/Genetic purity
3. Freedom from weeds
4. Germination percentage
5. Seed vigour and health
6. Seed Moisture content
7. Seed size, weight and specific gravity

Seed Quality Characters:

A good seed should have the following quality characters.

1. **Improved variety:** It should be superior to the existing variety ie, the yield should be higher by 20-25% than the existing variety or it should have some desirable attributes like disease resistance, drought resistance, salt tolerance etc., with good yield potential.

2. **Genetic Purity:** The seed should be true to type. The seed should possess all the genetic qualities/characters, which the breeder has placed in the variety, genetic purity has direct effect on the yields. If there is any deterioration, there would be proportionate decrease in the yield or performance.

3. **Physical Purity:** Physical purity of a seed lot refers to the physical composition of the seed lots. A seed lot is composed of pure seed, inert mater, broken seeds, undersized seeds, soil and dust particles weed seeds, OCS etc. Higher the content of pure seed better would be the seed quality. Pure seed together with germination gives the planting value of the seed lot.

4. **Seed germination and vigour:** Seed germination refers to the ability of a seed when planted under normal sowing conditions to give rise to a normal seedling. Seed vigour refers to the sum total of all seed attributes that give effective plant stand in the field. Higher germination percentage and vigour gives adequate plant population and uniform growth, which have profound effect on, yield and determine the planting value of the seed.

5. **Freedom from weeds and other crop seeds:** This is an extension of physical purity described earlier. There are certain weed species, which are very harmful to the crop and once established they are difficult to eradicate. An absolute freedom from seed of such species is highly desirable and is one of the important criteria for determining the planning quality of seeds.

6. **Seed health:** Seed health refers to the presence or absence of disease organisms or insect pests on the seed. The quality of a seed lot depends on its health, hence the seed should be free from seed borne disease and insect pests.

7. **Seed moisture:** The seed moisture is the most important factor in determining the seed germination and viability during storage. At high seed moisture content there is high incidence of pest attack and at moisture content above 16% seed get heated and the viability is lost. Hence the seed should be stored at safe moisture levels of 11-13%.

8. **Seed size, weight and specific gravity:** Seed size, weight and specific gravity have been found to have positive correlation with seed germination and vigour in many crops. Therefore the seed should be bold with high specific gravity.

9. **Seed Colour:** The colour of the seed often reflects the condition during seed maturation. The farmers from ancient times have regarded good normal shine as invariable quality guides. The colour and shine deteriorates only when the weather conditions are adverse during maturation or when insects infest the crop or when it is handled badly.