

Seed Quality Parameters

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Seed is the most vital input in agriculture, and the quality of seed largely determines the success or failure of a crop. Seed quality refers to the collection of characteristics that ensure a seed performs well in the field, including genetic purity, physical purity, germination percentage, vigor, moisture content, health, and seed size. Among these, genetic purity guarantees that the crop expresses the true characteristics of its variety or hybrid, while physical purity ensures that the seed lot is free from weeds, broken seeds, or inert matter. Germination and vigor directly influence the establishment of strong, healthy seedlings, which are essential for achieving good yields. Moisture content and seed health play a critical role in safe storage and preventing disease outbreaks.

Keywords: Seed, Quality, Healthy seedlings.

Introduction

In agriculture, “good seed means good harvest.” The quality of seed determines not only how well the crop establishes but also how much yield and profit a farmer can expect. Seeds are the basic input in farming, and unlike fertilizers or pesticides, their role cannot be replaced. Hence, understanding seed quality parameters is essential for every grower, whether small or large.

What is Seed Quality?

Seed quality refers to the collection of physical, physiological, genetic, and health attributes that make a seed suitable for sowing. High-quality seeds ensure quick and uniform germination, healthy seedlings, and ultimately better yields.

Major Seed Quality Parameters

1. Genetic Purity

- Seeds must be true to their variety or hybrid.
- Genetic purity ensures that the crop expresses the desired traits like yield, fruit size, color, and disease resistance.
- Example: A hybrid tomato seed must give uniform fruits of the promised quality, not a mixture of shapes and sizes.

2. Physical Purity

- Refers to the proportion of actual seed of the intended crop in a sample.
- High-quality seed must be free from weed seeds, broken seeds, stones, or other crop seeds.
- Physical purity is usually expressed in percentage (e.g., 98% pure).

3. Germination Percentage

- Indicates how many seeds will successfully sprout under ideal conditions.
- High germination (above 80–90% in vegetables) means fewer seeds are wasted, and the crop establishes well.

4. Seed Vigor

- Vigor represents the energy and strength of a seed during germination and seedling growth.
- Even if two seed lots have the same germination percentage, the one with higher vigor will produce stronger, healthier seedlings.
- This is crucial for crops like onion or chili, where early establishment decides final yield.

5. Moisture Content

- Safe moisture level is vital for storage.
- For most seeds, moisture should be below 8–10% to prevent fungal growth and insect damage.
- Proper drying and storage in airtight containers extend shelf life.

6. Seed Health

- Seeds should be free from pathogens (fungi, bacteria, viruses) and insect infestations.
- Infected seeds lead to poor germination and spread diseases in the field.

7. Seed Size and Weight

- Larger, well-developed seeds usually have better germination and vigor compared to small, shrivelled ones.
- Example: Bold maize seeds establish better stands than small, lightweight ones.

Conclusion

Seed quality is the foundation of successful farming. By paying attention to genetic purity, germination, vigor, and health, farmers can ensure strong crop stands and profitable harvests. Remember, investing in good-quality seeds may seem costly at first, but it saves money on inputs and guarantees higher returns.

References

1. Agarwal, R.L. (2019). *Seed Technology*. Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi.
2. ISTA (2023). *International Rules for Seed Testing*. International Seed Testing Association, Switzerland.