

SEED TESTS

What do they Mean to the Farmer ?

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The question of Seed Tests and what they actually mean often gets asked.

The following answer was prepared by Dr Nassery some years ago (12 April 2002), and has been available to RLF clients since that time.

Answers:

Seed Life Span (Longevity)

The seed life span is often used synonymously with terms such as seed viability and longevity. Such terms refer to the ability of the seed to keep its germination potential after harvest and in storage.

When seeds are matured they lose most of their water content, which is the key factor in reducing their metabolic activity, and therefore prolonging viability. The other important factor affecting seed germination and longevity is the temperature. A lower range of storage temperature reduces the seed's metabolism (aging process), thereby increasing its longevity.

Type of Seed Tests

Seed tests may be carried out to assess:

1. **Impurity** (presence of unwanted seeds)
2. **Germination** (measured as % of seeds germinated under suitable condition)
3. **Vigour** (measured as % of seeds germinated after a short period of stress)
4. **Disease** agents

Germination and vigour are often done in the same tests.

- Germination is presented as % of seeds germinated under suitable laboratory condition that suits the seed in question.
- Vigour is measured by stressing the seed prior to testing its germination. The stress is given for a short period (a few days) followed by standard germination test.

The stress may be given by:

- Storage for a few days in cold and moist condition to simulate the soaking conditions in the field, or
- Storage at high temperature and moisture to age the seeds (referred to as accelerated aging).

Such treatments tend to sieve out the weaker seeds that would otherwise germinate under suitable conditions but are not as viable to do so after the stress period. It is believed that vigour measurement is closer to the actual seedling emergence in the field. Therefore, if seeds have a high moisture content during storage, the farmer would be able to pick the best sowing rate by looking at the vigour tests (% of seeds germinated after stress).

As the vigour in such tests is measured over a short time, it does not express the behaviour of seedling beyond the test period. What follows after germination (the first week or so) is dependent on inborn seed factors (genetic and nutritional), or outside factors (fertiliser and soil/climate factors).

Practical implications of Seed Tests

We know from the published research work and farmer results using BSN, that the seedling establishment (i.e. root and tiller establishment) is influenced by seed nutrient reserves which are not reflected in standard seed tests. The aim of a seed test is to gain information on purity, viability and disease rating to make sure that the seed source is good and what the expected crop population is at a given sowing rate.

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