



# SEED ANALYSIS

## FACT SHEET: DORMANCY

### SEED DORMANCY:

Viable seeds that fail to germinate when provided the specified germination conditions for the kind of seed in question.

### How do we know that these seeds are viable?

1. The seed analyst can conduct a tetrazolium test on the seeds that remain ungerminated at the end of a germination test. Or,
2. The seed analyst may compare results of tests conducted with and without dormancy breaking measures.  
Dormancy breaking measures may include:
  - a. Exposure of seeds to a period of moist chilling prior to the germination test.
  - b. Use of GA<sub>3</sub> hormone or KNO<sub>3</sub> during the germination.
  - c. Use of acid or mechanical abrasion or nicking to overcome mechanical resistance of hard or rigid seed coats or covering structures. Removal of covering structures.
  - d. Use of water bath to remove chemical inhibitors.

### Categories of seed dormancy:

#### Seed coat:

1. Hard seededness: Seed fail to imbibe water due to impermeable seed coat.
2. Mechanical resistance: Rigid seed coverings resist embryo expansion even though the tissues may successfully take up water.
3. Chemical inhibitors: Seed coverings contain chemicals which inhibit germination

#### Morphologically undeveloped embryo (Rudimentary embryo):

Some species produce seeds with extremely small and underdeveloped embryos in seeds that are mature enough to detach from the plant. Such seeds simply need much more time for the embryo to grow and develop within the seed prior to germination.

#### Internal dormancy:

1. Physiologically shallow dormancy: Present in some freshly harvested seed. Disappears with dry storage over a period of days or months.
2. Light dormancy: Some species have exact requirements of light quality, quantity, and duration to induce germination.
3. Temperature dormancy: Many seeds are specific in their temperature requirements. Some need alternating temperatures (day/night). Others germinate over a narrow range of temperatures and go dormant at temperatures above or below this range.
4. Physiologically deep dormancy: Seeds are unable to germinate until they undergo a cool-moist period over a few days or a few months.

**Combined dormancy:** More than one type of dormancy may occur within the same seed.

**Induced or secondary dormancy:** Viable, non-dormant seeds may become dormant when placed in environments which are unfavorable to germination.