

Physical dormancy

Learning objectives: To observe the impact of scarification on dormancy release in seeds with physical dormancy.

Background: One of the types of primary dormancy is physical dormancy (also called exogenous dormancy). Seeds with physical dormancy have hard seed coats that do not allow the seed to absorb water. It occurs in only a few plant families, but is very common in the legume family. Plants with physical dormancy covered by this website include honeylocust, eastern redbud, Kentucky coffeetree, and yellowwood.

To get seeds with physical dormancy to absorb water, they must be scarified. In nature, this is most often caused by high temperature. However, any treatment that breaks the seed coat will allow these seeds to imbibe.



This demonstration will use honeylocust seeds to compare physical scarification with a file with hot water scarification.

Procedure:

1. There will be three treatments – an untreated control, physical scarification, and hot water scarification.
2. Select ten seeds for each treatment and weigh them.
3. For the physical scarification treatment, use a file to scratch an opening into the seed coat at a single location.
4. For the hot water treatment, boil a cup of water. Remove it from the heat source and put in the seeds. Allow the seeds to stay in the hot water for one minute and then remove.
5. Place the seeds on a moist towel in a plastic bag. Observe and weigh the seeds after 1, 2, and 5 days. Check to see how many seeds have absorbed water and enlarged. You will also see a difference in how quickly the seeds germinate.

