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COMPONENT; PRINCIPLE OF CROP PRODUCTION  
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**Questions; describe the types of seed dormancy and how to broken it**

**Dormancy** is a state of reduced metabolic activity that is adopted by many organisms under conditions of environmental stress or, often, as in winter, when such stressful conditions are likely to appear.

## These are the types seed dormancy and their explanations.

**Physical dormancy** is caused by the seed coat being too hard or impermeable to water or oxygen. This type of dormancy can be broken down into two categories:

**Mechanical scarification:** This is the process of scratching or damaging the seed coat to allow water to penetrate. This can be done with a sharp knife, sandpaper, or a file

eg; **Soaking in water** and **Peeling the seed coat**

**Chemical scarification:** This is the process of using chemicals to soften or dissolve the seed coat. Common chemicals used for chemical scarification include sulfuric acid, nitric acid, and potassium hydroxide.

Eg; **Passing through the digestive tract of an animal:** This can break the seed coat and expose the embryo to water

**Physiological dormancy** is caused by factors within the seed embryo, such as the immaturity of the embryo or the presence of germination inhibitors. This type of dormancy is often broken down into two categories:

**Cold stratification:** This is the process of exposing the seed to cold temperatures for a period of time. This can help to break down the germination inhibitors that are present in the seed.

**Kendall treatment:** This is a method of breaking dormancy in seeds that involves exposing the seeds to alternating temperatures of hot and cold water.

**Light:** Some seeds require exposure to light in order to break dormancy. This is because the light triggers the production of growth hormones that are necessary for germination.

**Gibberellic acid:** This is a plant hormone that can be used to break dormancy in some seeds.

**Morphological dormancy** is caused by the presence of structures in the seed that prevent germination, such as a hard endosperm or a thick pericarp. This type of dormancy has two categories:

**Heat treatment:** This is the process of exposing the seed to high temperatures for a period of time. This can help to stimulate the growth of the embryo and break down the inhibitors that are present in it

**Chemical treatment:** This is the process of using chemicals to stimulate the growth of the embryo and break down the inhibitors that are present in the seed.

Seed dormancy is very useful for example;

**it ensure that seeds germinate at the right time;** Seed dormancy can help to ensure that seeds germinate at the right time, even if the conditions are not ideal for germination

**prevent seeds from germinating too early.** Seed dormancy can also help to prevent seeds from germinating too early. This is important for seeds that are stored for long periods of time

etc...