

Difference Between Vegetative Propagation and Spore Formation

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Key Difference - Vegetative Propagation vs Spore Formation

Vegetative reproduction and spore formation are two types of [asexual reproduction](#) in plants. Vegetative propagation is the development or the growth of a new plant from a vegetative part or propagule. Spore formation is a method where new individuals are produced through [spores](#); tiny spherical spores are produced and released into the air (environment) by the organisms. Once these spores are deposited on a suitable substrate, they germinate and develop into new individuals. The key difference between vegetative propagation and spore formation is that **vegetative propagation is carried out by vegetative parts of the parent while spore formation is done by spores produced by the parent.**

What is Vegetative Propagation?

Vegetative propagation is a type of asexual reproduction method in plants. There are various types of vegetative propagation units involved in vegetative propagation. They include runners, corms, [tubers](#), bulbs, [rhizomes](#), suckers, offsets, etc. These units are capable of developing into new individual plants. They are also called vegetative propagules. If vegetative propagules are available, plants can produce new plants, without producing seeds or spores. Vegetative propagation occurs naturally as well as artificially.

Artificial vegetative propagation is used by gardeners and farmers to produce for commercial propagation. They use different methods of vegetative propagation. [Tissue culture](#), [grafting](#), [budding](#), layering, and cuttings are several methods used in artificial vegetative propagation. The most common type of vegetative propagation is done using stem cuttings. It is an easy way of propagating plants. A piece of the parent plant is removed and placed on a suitable substrate to grow into a new plant. Grafting is another popular method of vegetative propagation. Grafting is done by joining a stem or bud onto a stem of a mature plant which has roots.

Vegetative reproduction produces new plants which are genetically identical to the parental plant. Hence the genetic diversity of the plants is reduced, and they all compete for the same nutritional resources in the soil. This is a major disadvantage of vegetative reproduction.



Figure 01: Vegetative Propagation

What is Spore Formation?

Spore formation is a type of asexual reproduction seen in organisms including lower plants, [fungi](#), and [algae](#). The parental organism produces spores which are eventually developed into new organisms similar to the parent. The process of spore formation is known as sporogenesis. Haploid spores give rise to gametophyte generation in plants. They are not gametes developed for sexual reproduction. In fungi and some algae, true asexual spores are produced as a mode of asexual reproduction. These spores are produced as a result of mitosis, and once they germinate, they develop into new individuals.

These spores are tiny and low weighed and have thick walls to withstand harsh environmental conditions. Most of these spores are dispersal by the wind. A huge number of spores are produced by an organism at a time.

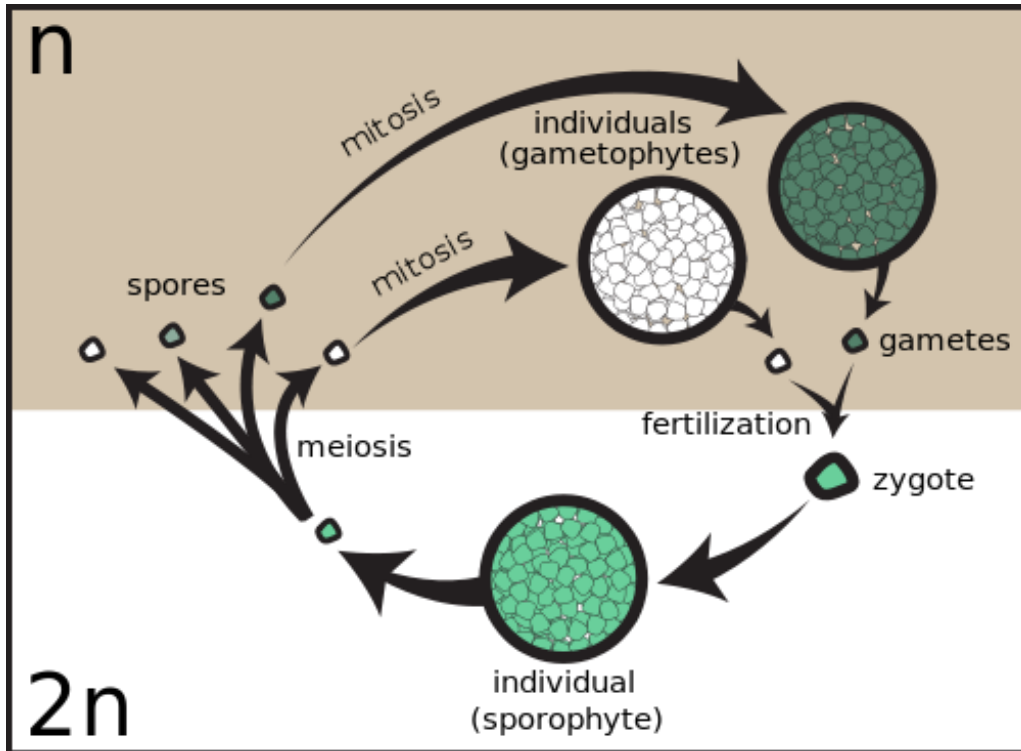


Figure 02: Spore Formation

What are the similarities of Vegetative Reproduction and Spore Formation?

- Vegetative propagation and spore formation are types of asexual reproduction.
- Vegetative reproduction and spore formation are performed by plants.
- Both types involve a single parent.
- Both types produce offspring that are genetically identical to each other and to parent.

What is the difference between Vegetative Propagation and Spore Formation?

Vegetative Propagation vs Spore Formation

Vegetative propagation is a type of asexual reproduction which produces new plants from vegetative parts of the parental plant.

Spore Formation is a form of asexual reproduction which produces new individuals directly from the spores of the parent.

Organisms	
Vegetative Propagation is shown by plants.	Spore Formation is shown by mushrooms, moulds, ferns, mosses, bacteria, etc.
Formation of Sporangia	
Vegetative propagation does not produce spore-bearing structures.	Spore formation is done inside special reproductive structures called sporangia.
Reproductive Structures	
Vegetative Propagation is carried out by various types of vegetative parts such as runners, rhizomes, bulbs, tubers, stems, corms, etc.	Spore formation is carried out by spores.
Resistance to Harsh Environmental Conditions	
Vegetative propagules are less resistant to harsh environmental conditions. However, some propagules can withstand hard conditions.	Spores are protected with hard protective coats. Hence, they are resistant to harsh environmental conditions.

Summary - Vegetative Propagation vs Spore Formation

Vegetative propagation and spore formation are two types of asexual reproduction techniques shown by organisms. The main difference between vegetative reproduction and spore formation is that vegetative reproduction is done using a vegetative part such as runner, corm, tuber, bulb or stem of the plants while spore formation is mainly done using haploid spores. Both techniques produce new individuals without involving two parents and fertilization.

References:

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