

SBL 1152- HORTICULTURE AND NURSERY

TOPIC 3: PLANT PROPAGATION

DR.HAMIDAH AHMAD



PLANT PROPAGATION

There are many ways of propagating or reproducing plants. The two most common methods of propagations are :

- a. Sexual propagation
- b. Asexual propagation.



Sexual Propagation

- Requires the union of pollen (the male sex cell) with the egg (the female sex cell) in the ovary
- Male or female cells may be from the same parent (Self-pollination)
or
- from separate parents (cross-pollination)
- The product of this method or approach of propagation is **SEED.**



Not all plants come true to SEED or to reproduce exact duplicate of the parent plants.

Sexual Propagation

Hybrids, offspring of two different varieties of one plant, each possesses certain characteristics which are desired in the new plant. It cannot be reproduced by seeds.



Sexual Propagation

Seeds and its Composition

A seed is a living entity which serves as a bridge between generations of a plant.

It is formed in the pistil of the flower and develops from the ovule following fertilization.



The basic parts of a seed are;

Sexual Propagation

a. Seed coat; is the outside covering of the seed which protects the embryonic plant.

b. Endosperm (Stored Plant Food); is the food storage tissue which nourishes the embryonic plant during germination.

c. Embryo (Embryonic plant); is the new plant that is developed as a result of fertilization. During germination, it extends its roots and seed leaves (cotyledon) to form a new plant.



Germination Media

Germination Media

- A good germinating media normally has a favourable pH level
- It has adequate supply of plant nutrients.
- It should be firm, porous, uniform in texture, sterile , and free of weeds, insects and disease organism.



Germination Media

Normally it may contain one or more of the following ingredients;

- a. Soil**
- b. Construction grade sand**
- c. Peat Moss**
- d. Sphagnum Moss**
- e. Horticultural Grade Perlite**
- f. Vermiculite**
- g. Jiffy Mix**



Germination Media

Normally it may contain one or more of the following ingredients;

- a. Soil**
- b. Construction grade sand**
- c. Peat Moss**
- d. Sphagnum Moss**
- e. Horticultural Grade Perlite**
- f. Vermiculite**
- g. Jiffy Mix**



Germination Media

a. Soil: made up of 45 % mineral matter, 5 % organic matter, 25 % air and 25 % water.

b. Construction grade sand: for its porous quality to allow better aeration and drainage.

c. Peat Moss: partially decomposed vegetation which has been preserved under water. Normally collected from marshes or swamps and has a high capacity for holding water.



Germination Media



[c] www.herbaldistribution.com



Germination Media

d. Sphagnum Moss:
dehydrated remains of acid bog plants. It is relatively sterile, light weight, controls disease well and has an excellent water-holding capacity.

e. Horticultural Grade Perlite:
a gray white material of volcanic origin. It is most commonly used to improve aeration of media.



Germination Media

d. Sphagnum Moss:
dehydrated remains of acid bog plants. It is relatively sterile, light weight, controls disease well and has an excellent water-holding capacity.

e. Horticultural Grade Perlite:
a gray white material of volcanic origin. It is most commonly used to improve aeration of media.



Germination Media

f. Vermiculite: a very lightweight mineral which expands when heated. It is neutral and has a very high water-holding capacity.

g. Jiffy Mix - Is composed of equal parts of shredded sphagnum moss, peat, and enough nutrients to sustain initial growth.



Germination Media

f. Vermiculite: a very lightweight mineral which expands when heated. It is neutral and has a very high water-holding capacity.

g. Jiffy Mix - Is composed of equal parts of shredded sphagnum moss, peat, and enough nutrients to sustain initial growth.



Two methods of seeding or sowing of seeds are;

PLANT PROPAGATION METHOD:

1. SEEDING

- a. **Indirect seeding**: a process in which seed is sown in a separate place from where the plants will eventually grow to maturity.
- b. The seedlings are transplanted one or more times before they are placed in the permanent growing area.



PLANT PROPAGATION METHOD:

1. SEEDING

Indirect seeding

Normally seeding is done in a flat, a wooden box with slats in the bottom for drainage).

The flat box is normally filled up with germinating media and leveled off using a tool called a skew.



PLANT PROPAGATION METHOD:

1. SEEDING

b. Direct seeding

refers to seeds planted in the permanent growing area.

It is the most economical method of seeding.

In direct seeding, **soil** is the media of germination.



PLANT PROPAGATION METHOD:

1. SEEDING

b. Direct seeding

refers to seeds planted in the permanent growing area.

It is the most economical method of seeding.

In direct seeding, **soil** is the media of germination.



Asexual Propagation

This method of propagation is also known as the **vegetative propagation**.

This is **not a sexual process**, and **no seeds are used** in this method.

Plants are propagated from its parts, such as the **leaf, stem, or roots**.



Asexual Propagation

Why is asexual propagation of plants used regularly for some species instead of seeding?

a). Some plants do not produce seed.

Examples: banana, seedless grape or orange.

b). Some plants do not come "true" from seeds.

There are plants that are **heterozygous**:

They have a mixture of heritage factors in their chromosomes that show great variation of type when grown from seed.



Asexual Propagation

Why is asexual propagation of plants used regularly for some species instead of seeding?

c). Asexual propagation may be faster than seed propagation especially for those plants that produces extremely small-seeds.

d). It is more economical to produce plants asexually.

e). It may be easier to certain extent for some species.

