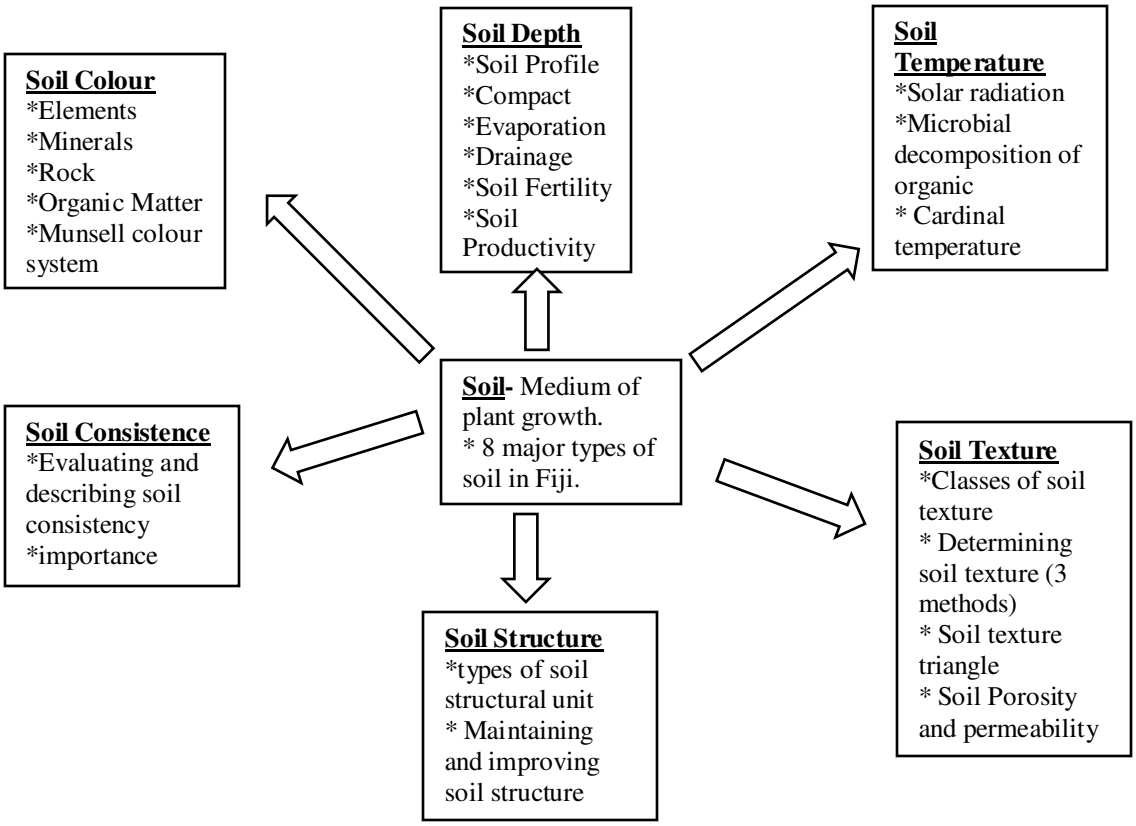
Sangam SKM College – Nadi
Lesson Notes – Week 1
Year 11
Agricultural Science

Strand	AS11.3 Agronomy
Sub Strand	AS11.3.1
CLO	AS 11.3.1.1 Physical properties of soil

Lesson Notes

- ✓ Soil – is the mixture of minerals, organic matter, gases, liquids, and the countless organisms.
- ✓ There are 3 properties of soil: Physical properties, biological properties and chemical properties.
- ✓ Physical properties include: Soil Texture, soil structure, soil porosity and soil consistence.
- ✓ Soil texture - refers to the size of the particles that make up the soil
- ✓ Structure - the arrangement of the solid parts of the soil and of the - pore space located between them.
- ✓ Porosity - pore space refers to the volume of soil voids that can be filled by water and/or air.
- ✓ Consistence - the strength with which soil materials are held together.
- ✓ There are other minor physical properties of soil that includes soil color, soil depth and soil temperature
- ✓ Munsell Colour System - an international standard reference system used to describe soil color.
- ✓ Soil depth is the distance from the surface of a soil profile to bedrock
- ✓ Soil fertility - ability of soil to supply water, nutrients, air and the correct temperature needed by plants to grow.
- ✓ Soil productivity - capacity of soil to produce crops and is expressed in terms of yield.
- ✓ There are three methods used to determine the texture of soil: **Feel, Ball and Ribbon** and **Ball Throwing** method.
- ✓ Soil structure affects water and air movement through soil.
- ✓ Soil structure can be improved by: breaking the hard pan, adding organic matter.
- ✓ Soil consistence is important in determining the operations which can be carried out on a farm.

Concept mapping diagram summary



Activities

1. Define soil porosity.
2. State 2 ways of improving soil structure.
3. List three methods of determining soil texture.

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Lesson Notes- Week 2

Subject: Agricultural Science Year: 11

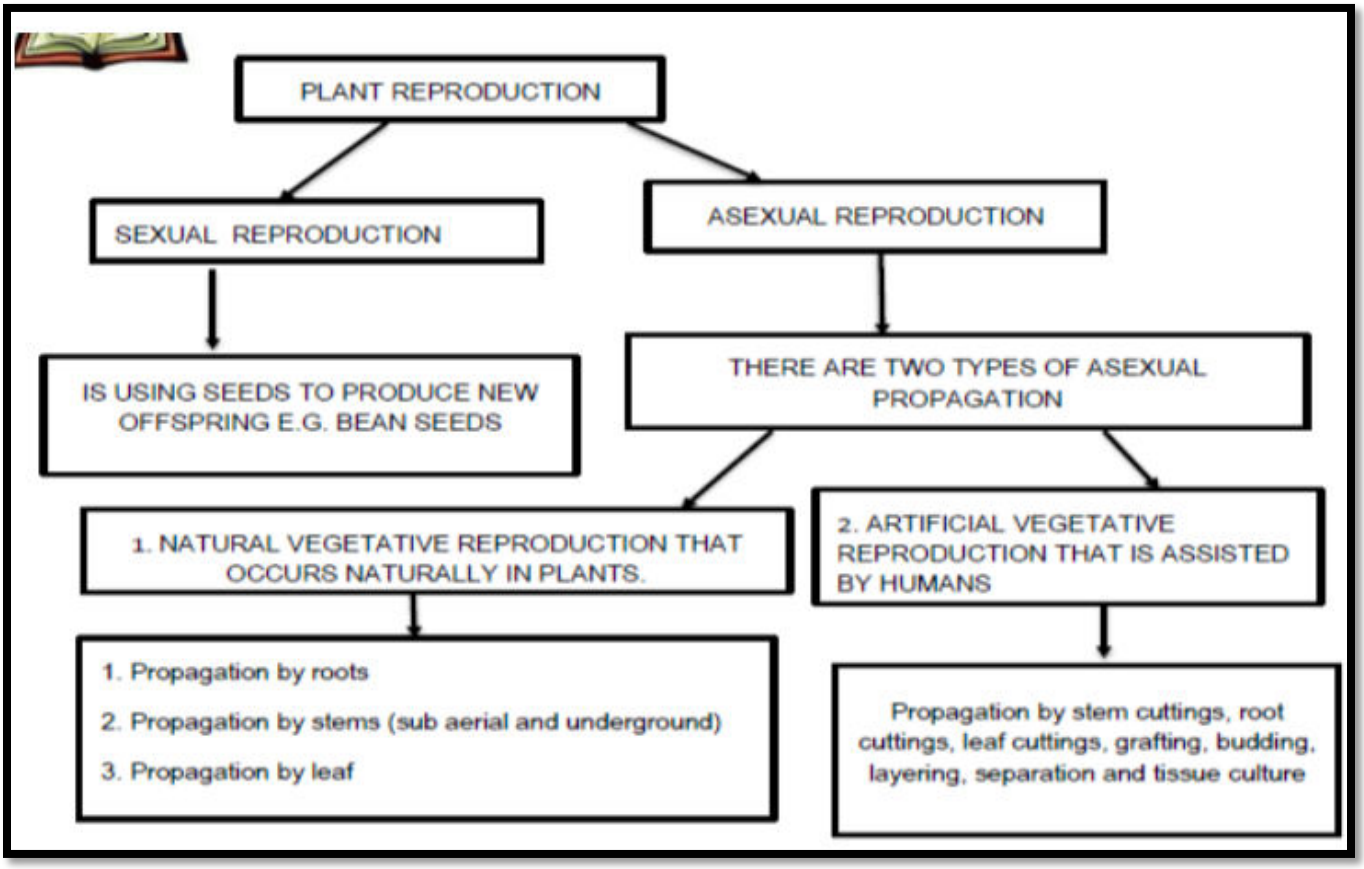
Strand	AS11.3 Agronomy
Sub Strand	AS11.3.2 Horticulture
CLO	AS 11.3.2.1 Asexual Propagation

Notes

Crop reproduction and Sexual reproduction

- ✓ Reproduction means the action or process of making a copy of something. Sexual reproduction and Asexual reproduction
- ✓ There are two types of asexual propagation. Natural vegetative propagation – which occurs naturally in plants. Artificial vegetative propagation – which is assisted by human intervention.
- ✓ Sexual reproduction – production of offspring involving two parents releasing gametes or sex cells e.g. using seeds.
- ✓ Asexual reproduction - production of offspring involving single parent from which the planting material is extracted e.g. stem cuttings.
- ✓ The main functions of the root system are absorption of water and minerals from the soil, providing a proper anchorage to the plant parts, storing reserve food material and synthesis of plant growth regulators.
- ✓ The region of the stem where leaves are born are called nodes while internodes are the portions between two nodes.
- ✓ Leaves originate from shoot apical meristems. Leaf develops at the node and bears a bud in its axil. The axillary bud later develops into a branch.
- ✓ When a flower has both androecium and gynoecium, it is called bisexual. A flower having either only stamens or only carpels is unisexual.

Reproduction In Plants



Activities

1. Differentiate between Axillary Bud and Terminal Bud on a plant?
2. Draw a leaf of a palm tree and show the venation on it?
3. Differentiate between bisexual flowers and unisexual flowers of a plant?

Reference

Refer to pages 102-106 of your Y11 Agricultural Science text book.
NB: please go over the vocabularies

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Lesson Notes- Week 3

Subject: Agricultural Science Year: 11

Strand	AS11.3 Agronomy
Sub Strand	AS11.3.2 Horticulture
CLO	AS 11.3.2.1 Asexual Propagation

Notes

Sexual & Asexual Reproduction

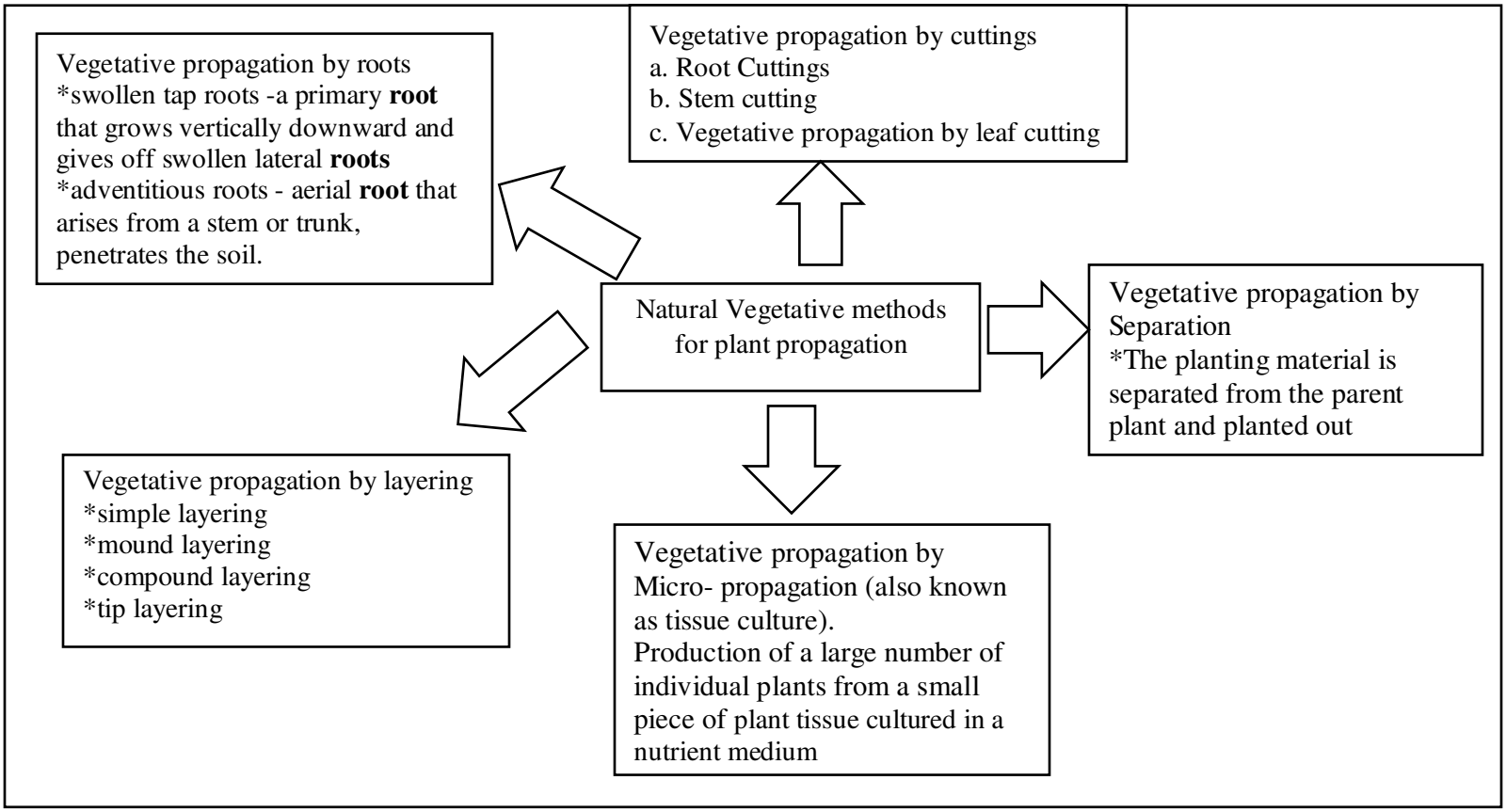
	1. Sexual reproduction	2. Asexual reproduction
Parents involved	Two	one
Gametes	involved	not involved
Offspring	not identical to parents	identical to parents
Number of offspring	Comparatively less	Comparatively more
Examples	e.g. seeds	e.g. plant parts other than seeds

Advantages and Disadvantages of Sexual Reproduction

Advantages of Sexual Propagation	Disadvantages of Sexual Propagation
Seeds are cheap way of growing large number of plants	Some seeds don't last in storage
Simple equipment and facilities are required then other propagation methods	Seeds also undergo dormancy
Seeds are easily transported and stored.	Some plants don't produce seeds
Seeds are easy to store.	New plants may take long time to reach maturity.

Advantages of asexual propagation	Disadvantages of asexual propagation
Is the simplest form of reproduction	Dependent on favourable environmental conditions and human skill.
Plants that cannot produce viable seeds can be grown by vegetative propagation.	Vegetative parts such as roots, stems, leaves and bulbils cannot be preserved for long periods
Only one parent is required which eliminates the need for special mechanisms such as pollination.	The plants gradually lose their vigour as there is no genetic variation.

Natural Vegetative Methods for Plant Propagation



Activities

1. List down any four factors needed for a viable seed to germinate?

2. Name the condition in plants where it does not produce seeds?

3. a) State one use of the variation in offspring?

   b) Discuss on the survivability of seeds and a bulb during unfavorable condition?

Reference

Refer to pages 107-112 of your Y11 Agricultural Science text book.
NB: please go over the vocabularies and the tables.