



CLASSIFICATION OF CROPS

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Why classify CROPS?

- ❑ For order and organization
- ❑ For logical naming: common names are not adequate because they vary from country to country, even from locality to locality

Basis for CLASSIFICATION

- ❑ **Aristotle** classified plants based on **structure and size** (e.g. herb, shrub, tree)
- ❑ **Carolus Linnaeus** classified plants based on **structure** only, i.e., different species with similar structural features
- ❑ **Modern classification** is based on **phylogeny** (evolution of plants)

2 main classification systems

Botanical system
(most precise and universally used)

Functional system

Agronomic crops

Horticultural crops

Grain/
cereal

Legumes/
pulses

Fiber

Forage

Root and
tuber

Crops for
industrial
processing

Rice
Corn
Wheat
Sorghum

Soybean
Mungbean
Cowpea
Chick pea
Pigeon pea

Cotton
Jute
Ramie
Kenaf

Napier
Centrosema
Ipil-ipil

Sweet
potato
Cassava

Potato

Sugarcane
Tobacco
Castor bean

AGRONOMIC CROPS

☐ Grains/Cereals

✓ Rice – *Oryza sativa*

✓ Corn – *Zea mays*

✓ Wheat – *Triticum aestivum*

✓ Grain sorghum – *Sorghum bicolor*

AGRONOMIC CROPS

☐ Legumes/Pulses

- ✓ Mungbean – *Vigna radiata*
- ✓ Peanut – *Arachis hypogaea*
- ✓ Soybean – *Glycine max*
- ✓ Chick pea – *Cicer arietinum*
- ✓ Cowpea – *Vigna unguiculata subsp. unguiculata*
- ✓ Pigeon pea – *Cajanus cajan*

AGRONOMIC CROPS

☐ Fiber

- ✓ Cotton – *Gossypium hirsutum*
- ✓ Jute – *Chorchorus olitorius*; *C. capsularis*
- ✓ Kenaf – *Hibiscus cannabinus*
- ✓ Ramie – *Boehmeria nivea*

AGRONOMIC CROPS

Root

✓ Sweet potato – *Ipomoea batatas*

✓ Cassava – *Manihot esculenta*

Tuber

✓ Potato – *Solanum tuberosum*

AGRONOMIC CROPS

☐ Forage

- ✓ Napier – *Pennisitum purpureum*
- ✓ Centrosema – *Centrosema pubescens*
- ✓ Ipil-ipil – *Leucaena leucocephala*

☐ Crops for industrial processing

- ✓ Castor bean – *Ricinus communis*
- ✓ Tobacco – *Nicotiana tabacum*
- ✓ Sugarcane – *Saccharum officinarum*

2 main classification systems

Botanical system
(most precise and universally used)

Functional system

Agronomic crops

Horticultural crops

Vegetables

Fruits

Ornamentals

Plantation

Leafy

Crucifers

Root
and
bulb

Legumes

Solanaceous

Cucurbits

Tree
vegetables

Other
crops

Lettuce
Kang-kong

Cabbage
Cauliflower

Radish
Onion

String bean
Winged bean

Tomato
Eggplant

Squash
Chayote

Himbabao

Okra
sweet
corn

HORTICULTURAL CROPS-

VEGETABLES

☐ Leafy Vegetables

- ✓ Swamp cabbage; tropical spinach – *Ipomoea aquatica*
- ✓ Jute – *Chorchorus olitorius*
- ✓ Lettuce – *Lactuca sativa*
- ✓ Celery – *Apium graveolens*
- ✓ Malabar spinach – *Basella alba*; *B. rubra*
- ✓ Green Amaranth – *Amaranthus viridis*

HORTICULTURAL CROPS-

VEGETABLES

❑ Crucifers / Brassicaceae/ Cruciferae/ Mustard Family

- ✓ Chinese Cabbage – *Brassica rapa*
- ✓ Mustard – *Brassica juncea*
- ✓ Cabbage – *Brassica oleracea* (*capitata* group)
- ✓ Pak-choi/ pechay – *Brassica chinensis*
- ✓ Cauliflower – *Brassica oleracea* (*botrytis* group)
- ✓ Broccoli- *Brassica oleraceae* var. *italica*

HORTICULTURAL CROPS-

VEGETABLES

☐ Root, tuber, and bulb

- ✓ Radish – *Raphanus sativus*
- ✓ Sweet potato – *Ipomoea batatas*
- ✓ Carrot – *Daucus carota*
- ✓ Onion – *Allium cepa*
- ✓ Garlic – *Allium sativum*
- ✓ Potato – *Solanum tuberosum*
- ✓ Ginger – *Zingiber officinale*

HORTICULTURAL CROPS-

VEGETABLES

☐ Legumes/ pulses

- ✓ 4-angled bean – *Psophocarpus tetragonolobus*
- ✓ Snap bean – *Phaseolus vulgaris*
- ✓ Stringbean – *Vigna unguiculata* sbsp. *Sesquipedalis*
- ✓ Lima bean – *Phaseolus lunatus*
- ✓ Hyacinth bean – *Lablab purpureus*

HORTICULTURAL CROPS-

VEGETABLES

☐ Solanaceous

- ✓ Tomato – *Lycopersicon esculentum*
- ✓ Sweet pepper – *Capsicum annuum*
- ✓ Eggplant – *Solanum melongena*
- ✓ Hot pepper – *Capsicum frutescens*

HORTICULTURAL CROPS-

VEGETABLES

☐ Cucurbits

- ✓ Cucumber – *Cucumis sativus*
- ✓ Bitter gourd – *Momordica charantia*
- ✓ Squash – *Cucurbita maxima*
- ✓ Bottle gourd – *Lagenaria siceraria*
- ✓ Watermelon – *Citrullus lunatus*
- ✓ Loofah – *Luffa acutangula*
- ✓ Chayote – *Sechium edule*
- ✓ Wax gourd – *Benincasa hispida*

HORTICULTURAL CROPS-

VEGETABLES

☐ Tree vegetable

- ✓ Sesban – *Sesbania grandiflora*
- ✓ Drumstick tree – *Moringa oleifera*
- ✓ Himbabao – *Alleaenthus luzonicus*

2 main classification systems

Botanical system
(most precise and universally used)

Functional system

Agronomic crops

Horticultural crops

Vegetables

Fruits

Ornamentals

Plantation

Tree
fruits

Nut
fruits

Small
fruits

Mango, lanzones,
durian, rambutan

Cashew, pili,
talisay

Strawberry, pineapple,
grape

HORTICULTURAL CROPS-FRUITS

DEFINITION

Fruit is a mature, ripened ovary. It contains the seed (ripened ovule) and pericarp (the tissue that surrounds the seed).

CLASSIFICATION

- a. **Simple fruit**- one fruit develop from single ovary of a flower with or without accessory parts. Ex. Corn, Peanut
- b. **Aggregate fruit**- collection of simple fruit developing from apocarpus pistil of a flower
- c. **Multiple or composite fruits**- develop from a number of flowers from an inflorescence. Ex. Pineapple, peach fruit.

Peanut - Legume



Pod



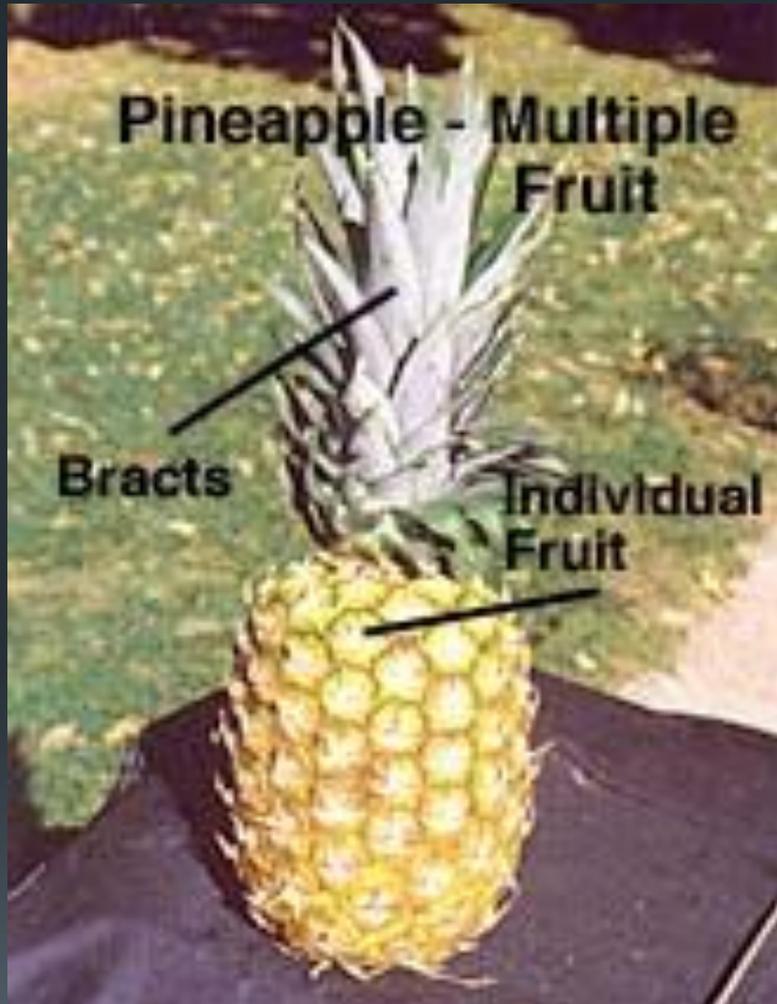
Seed



Pod

Strawberry - Aggregate Fruit



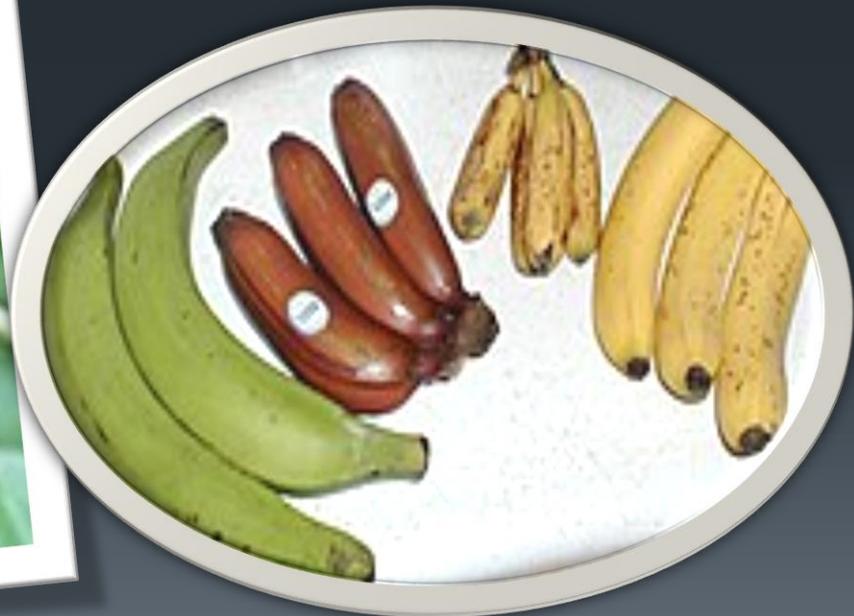


HORTICULTURAL CROPS-FRUITS

Types of Fruits- **FLESHY FRUITS** (Juicy)

❖ **Berry**- has an entirely fleshy ovary.

Examples: Tomatoes, dates, blueberries, bananas, peppers, and cranberries.



Grape Sections

Skin

Seed

Pulp

Longitudinal Section

Cross Section



HORTICULTURAL CROPS-FRUITS

Types of Fruits-

FLESHY FRUITS

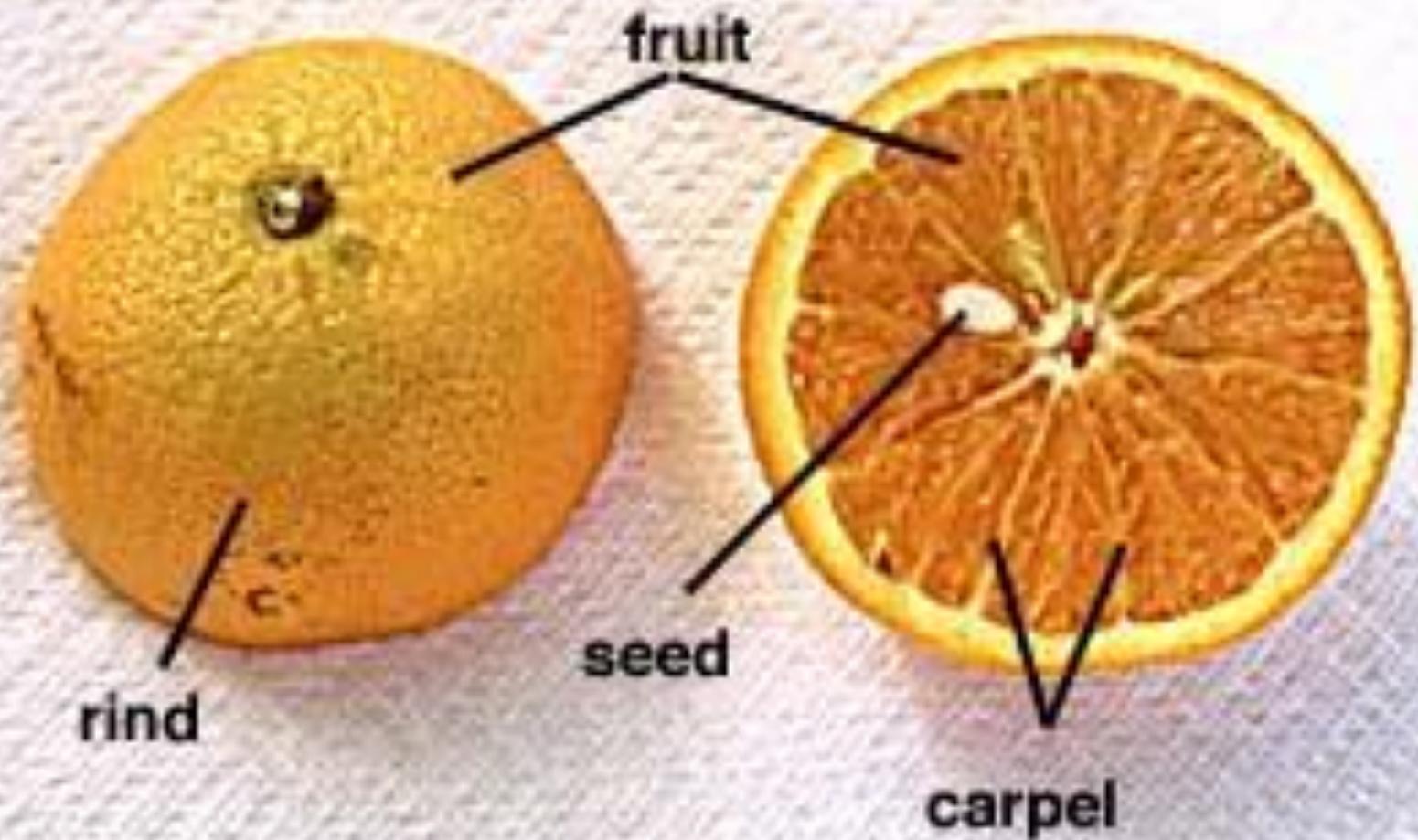
(Juicy)

❖ **Hesperidium**- have a leathery rind.

Examples: oranges, grapefruits, lemons and limes.



Orange - Hesperidium

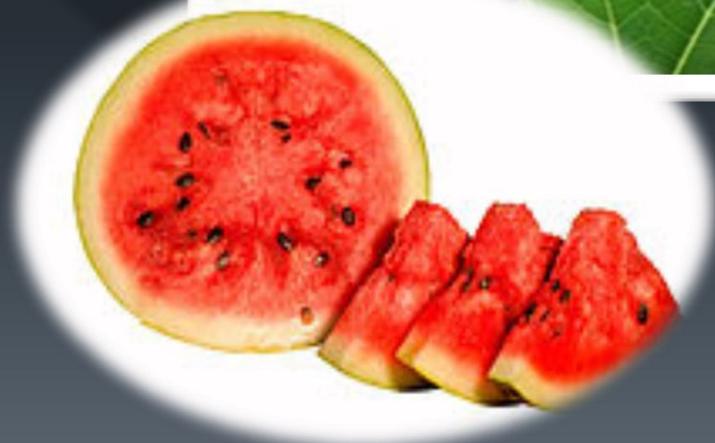


HORTICULTURAL CROPS-FRUITS

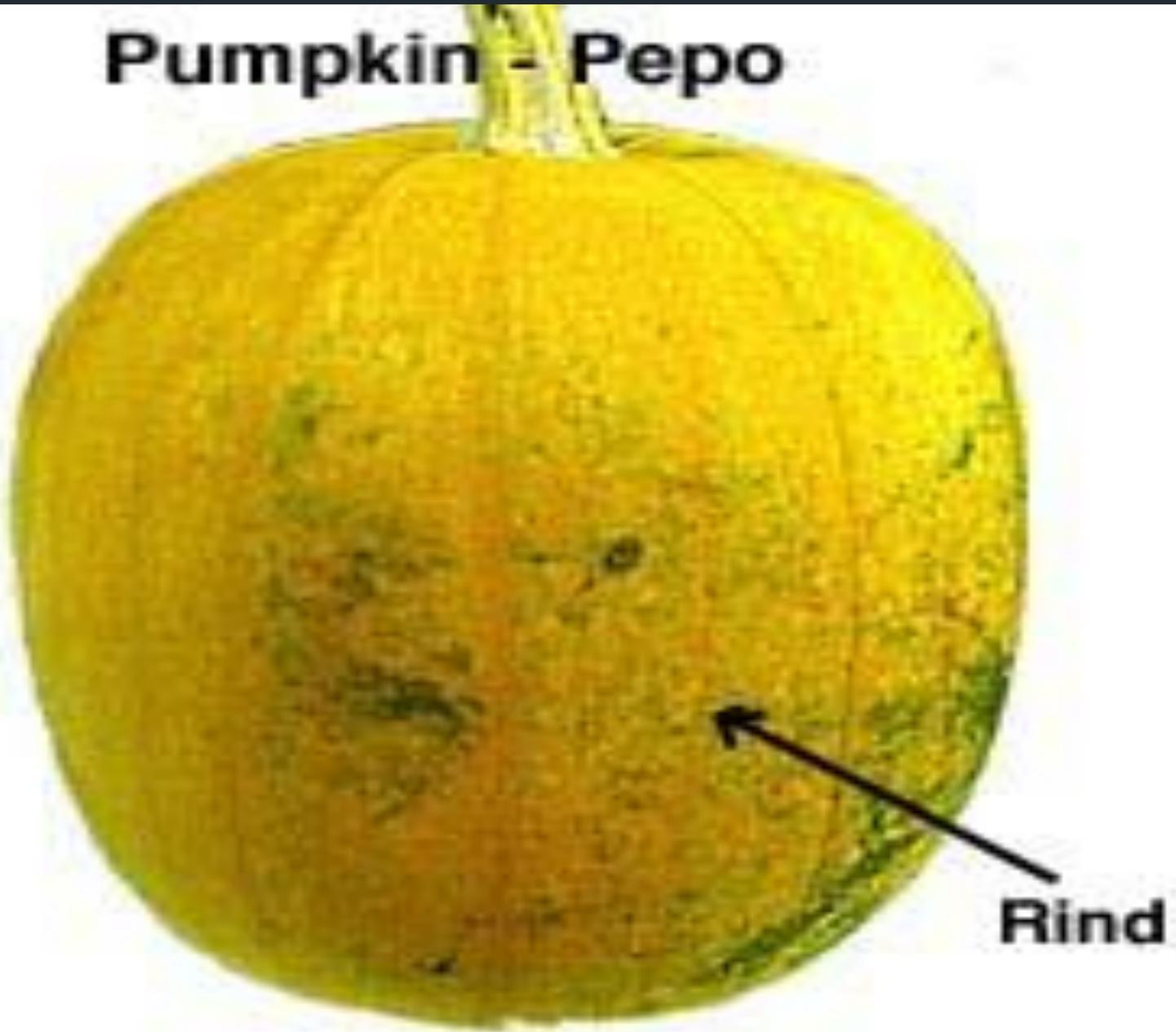
Types of Fruits- **FLESHY FRUITS**
(Juicy)

❖ **Pepo-** defined by hard rind and fleshy inner matrix.

Example: watermelons, cantaloupe, squash, and pumpkins.



Pumpkin - Pepo

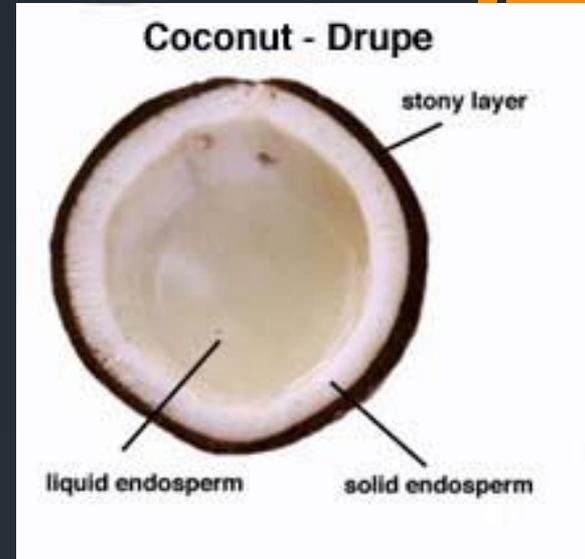


HORTICULTURAL CROPS-FRUITS

Types of Fruits- **FLESHY FRUITS** (Juicy)

❖ **Drupe**- is a fruit with fleshy exterior and a single hard, stony pit surrounding the seed.

Examples: coconut, mango

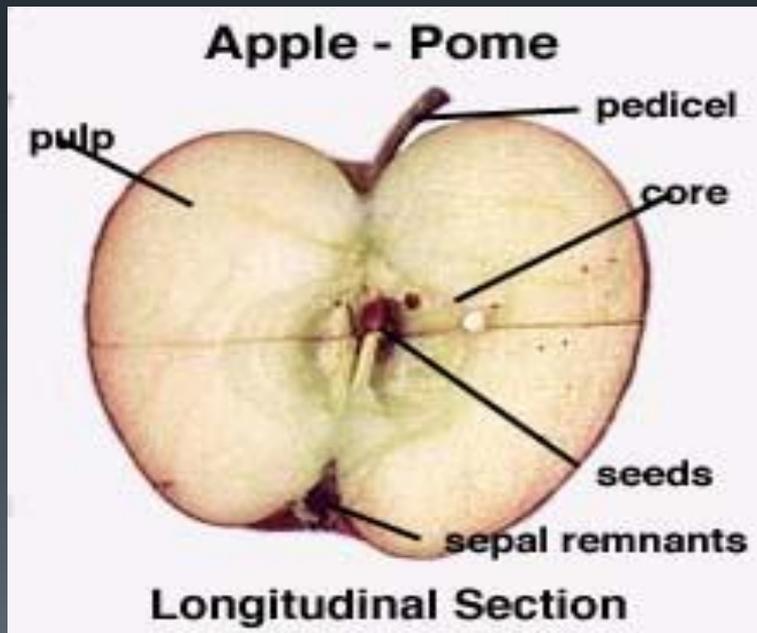


HORTICULTURAL CROPS-FRUITS

Types of Fruits- **FLESHY FRUITS** (Juicy)

❖ **Pomes**- have a fleshy exterior and a center with papery carpels.

Examples: apples and pears.



HORTICULTURAL CROPS-FRUITS

Types of Fruits- **DRY FRUITS** may be **indehiscent** or **dehiscent** .

Indehiscent fruits are those that do not split open at maturity and are usually one or two-seeded.

Dehiscent fruits are fruits that split open upon maturation.

HORTICULTURAL CROPS-FRUITS

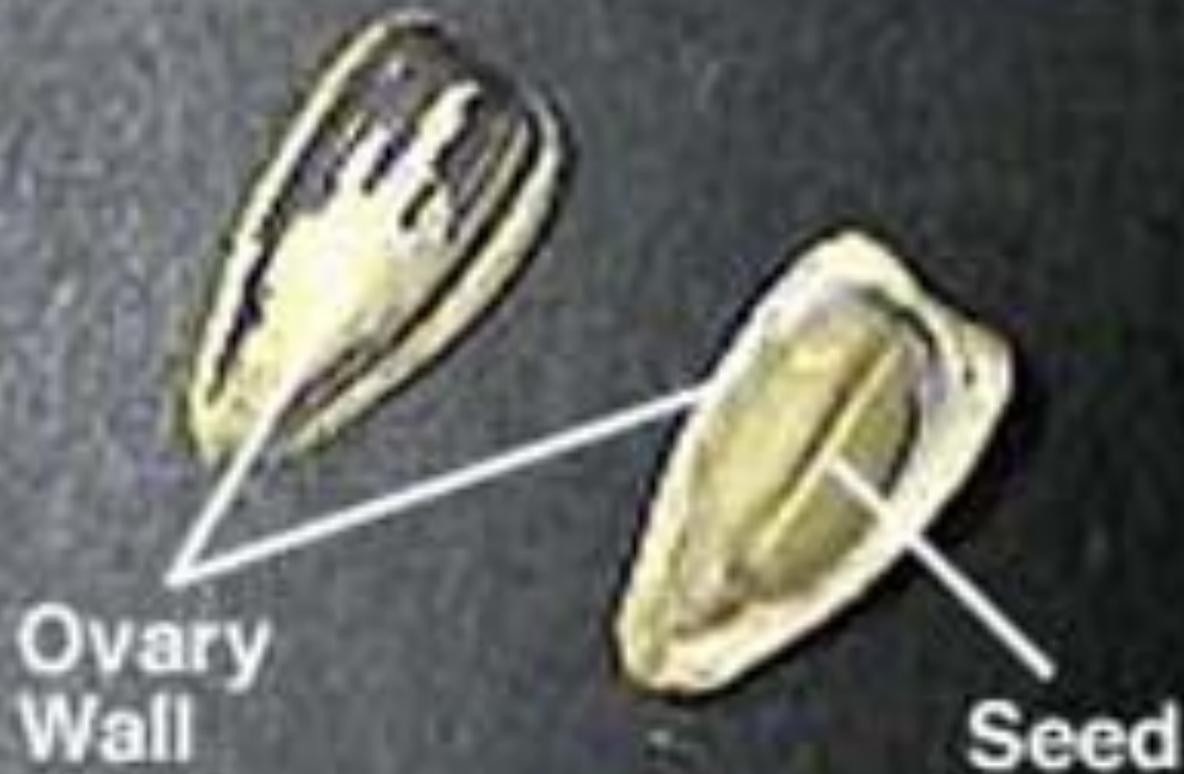
Types of Fruits- **DRY FRUITS** (Indehiscent fruits)



❖ **Achene-** is a single-seeded fruit with seed attached only at only one place to the pericarp.

Examples: Sunflower and strawberry

Sunflower - Achene



HORTICULTURAL CROPS-FRUITS

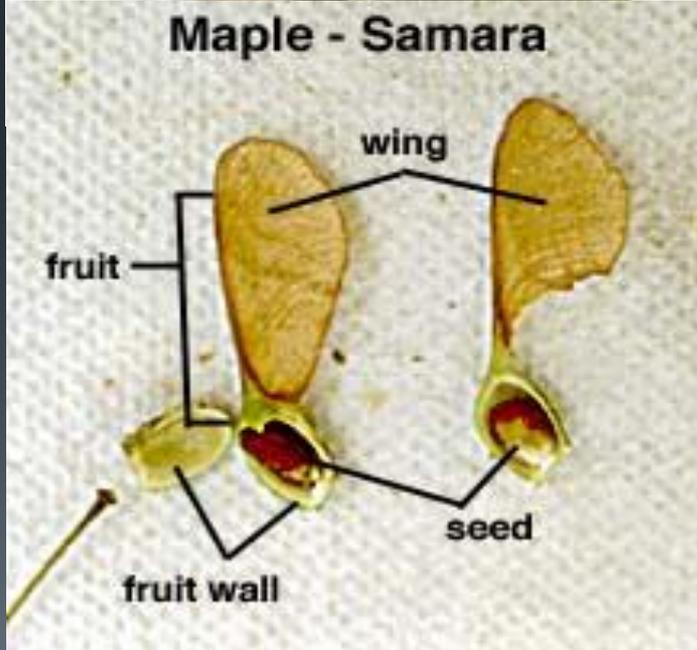
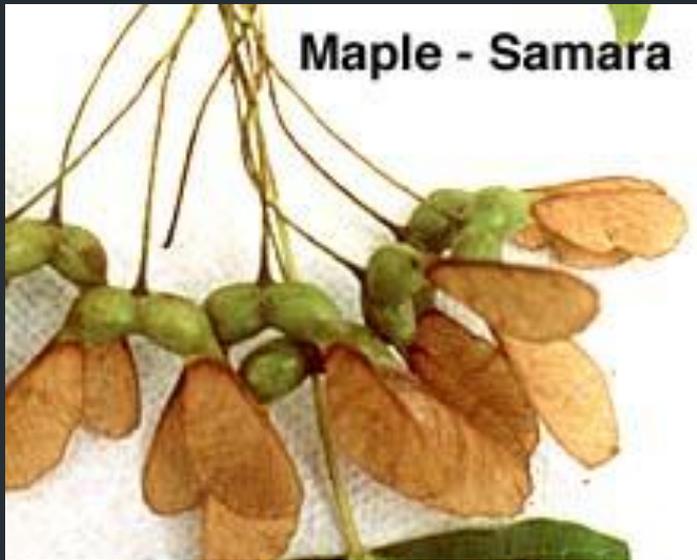
Types of Fruits- **DRY FRUITS**
(Indehiscent fruits)

❖ **Caryopsis**- a fruit is similar to an achence; however, the pericarp sticks or clings to the seed.

Examples: Corn, rice, barley, rye,



HORTICULTURAL CROPS-FRUITS



Types of Fruits- **DRY FRUITS** (Indehiscent fruits)

❖ **Samara-** is usually single-seeded with a membranous wing.

Examples: Maple, elm, and ash

HORTICULTURAL CROPS-FRUITS

Types of Fruits- **DRY FRUITS** (Indehiscent fruits)

❖ **Nut-** is a hard, one-seeded fruit.

Example: Oak and walnut

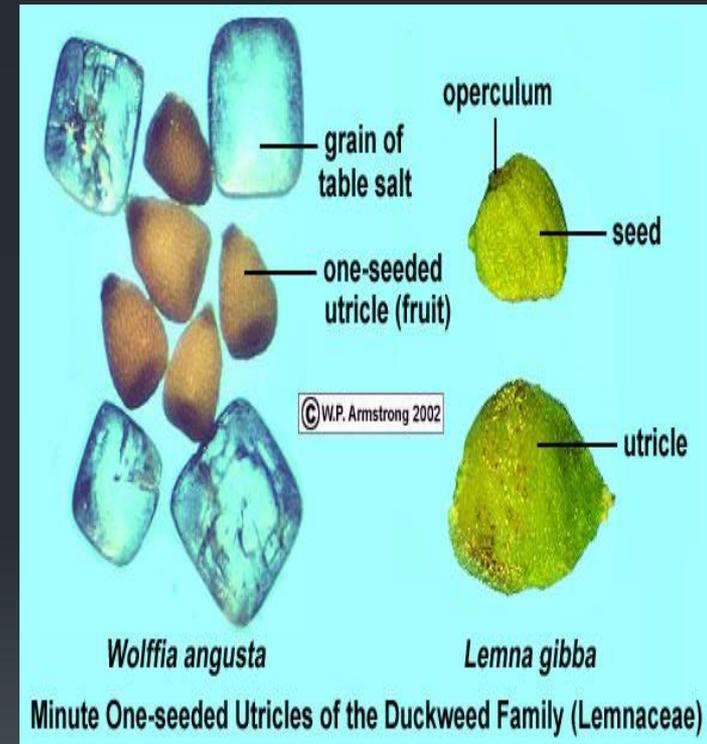


HORTICULTURAL CROPS-FRUITS

Types of Fruits- **DRY** **FRUITS (Indehiscent** **fruits)**

❖ **Utricle-** is like an achene, but the ovary wall fits loosely around the seed.

Examples: Finger millet and pigweed



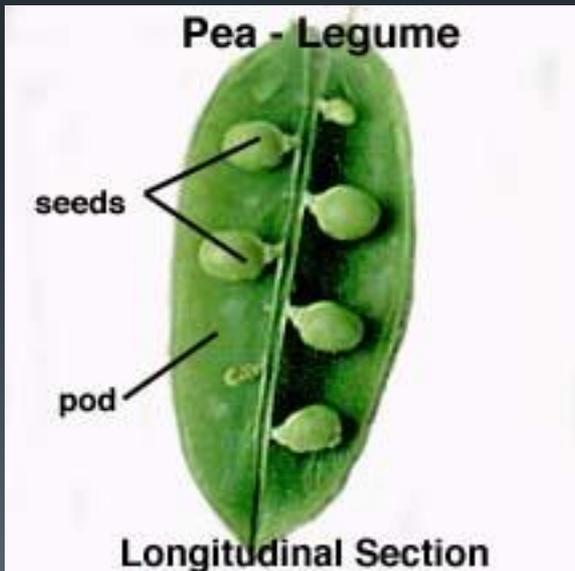
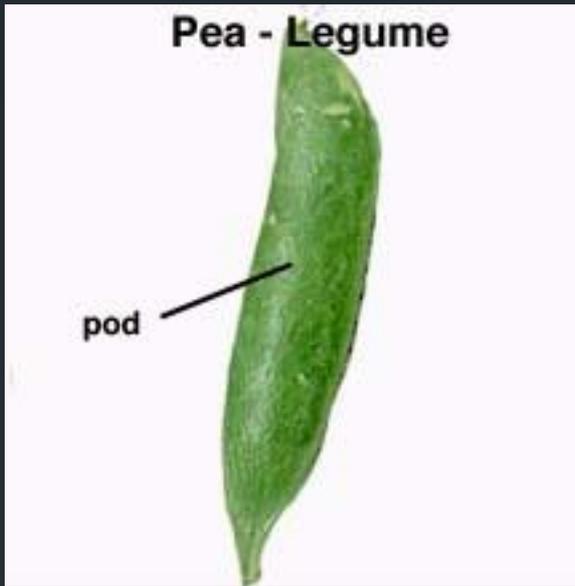
HORTICULTURAL CROPS-FRUITS

Types of Fruits- **DRY FRUITS** (Indehiscent fruits)

❖ **Nutlet-** is a small version of a nut.

Examples: Birch and hornbeam

HORTICULTURAL CROPS-FRUITS



Types of Fruits- **DRY FRUITS** (Dehiscent fruits)

❖ **Legume or pod-** is composed of a single carpel and has two longitudinal sutures.

Examples: soybeans, green beans, and peas

HORTICULTURAL CROPS-FRUITS

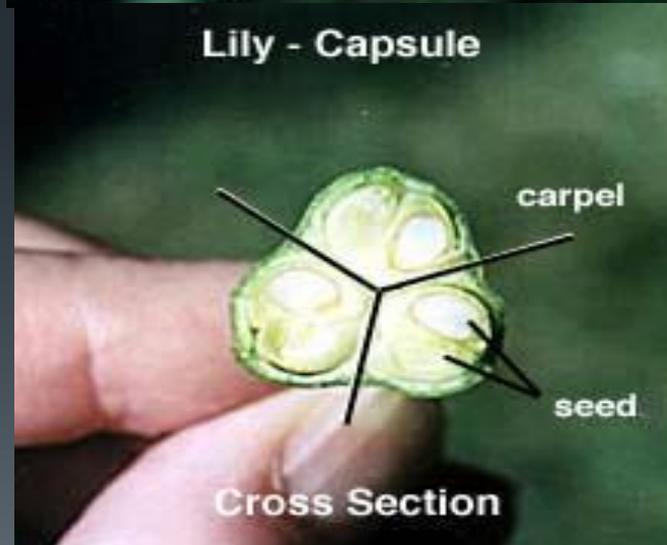
Types of Fruits- **DRY**
FRUITS (Dehiscent fruits)

❖ **Follicle**- is composed of a single carpel and splits open along one suture.

Example: milkweed



HORTICULTURAL CROPS-FRUITS



Types of Fruits- **DRY** **FRUITS** (Dehiscent fruits)

❖ **Capsule-** is composed of more than one carpel that are united and form many-seeded fruits.

Examples: Okra and cotton

HORTICULTURAL CROPS-FRUITS

Types of Fruits- **DRY FRUITS** (Dehiscent fruits)

❖ **Silique**- a specialized form of capsule in mustards.



HORTICULTURAL CROPS-FRUITS

Types of Fruits- **DRY FRUITS** (Dehiscent fruits)

❖ **Pyxis**- is a type of capsule with a lid that falls from the fruit.

Example: purslane

2 main classification systems

Botanical system
(most precise and universally used)

Functional system

Agronomic crops

Horticultural crops

Vegetables

Fruits

Ornamentals

Plantation

Oil crops

Fiber crops

Beverage crops

Spices,
condiments,
essences

Latexes
and resins

Medicinal
and botanical
pesticides

Coconut,
Castor

Abaca,
kapok, buri

Cacao, coffee,
tea

Turmeric,
black pepper,
vanilla

Rubber
(rimas,
papaya)

Lagundi,
neem

Classification Of Crops Base On Purpose

- ❑ **Cereals/ grain crops-** grown for their grains. Eg. Rice, corn, wheat, sorghum.
- ❑ **Legumes-** for pods and seeds. Eg. Cowpea, mungbean, sitao, peanut.
- ❑ **Root crops-** for enlarged roots or tuberous roots. Eg. Cassava and ubi
- ❑ **Fiber crops-** grown for their fibers used in textile, cordage, twines, sacks, bags etc. Eg. Cotton, ramie, kenaf, jute.

Classification Of Crops Base On Purpose

- ❑ **Oil crops-** grown for their oil content. Eg. Soybean, peanut, sunflower, castor, coconut.
- ❑ **Sugar crops-** grown for their sugar content. Eg. Sugarcane
- ❑ **Pature/ Forage crops-** used for roughage source for animals. Eg. Paragrass, napier grass, and ipil-ipil
- ❑ **Beverage crops-** used for brewing non-alcoholic drinks. Eg. Coffee, cacao, tea

Classification Of Crops Base On Purpose

- ❑ **Spices, condiments, essences-** used to provide special flavor, color, and scent to food, perfumes, soaps, and body dressing. Eg. Black pepper, vanilla, citronella, ilang-ilang
- ❑ **Latex and resins-** used for extracting sap from the trunk/ stem. Eg. Rubber, chico, pili, rimas, papaya

Classification Of Crops Base On Purpose

- ❑ **Medicinal and poison crops-** with curative, laxative and pesticidal properties. Eg. Lagundi, sambong, tobacco
- ❑ **Vegetables-** usually eaten with staple crops.
- ❑ **Fruits-** edible botanical fruits usually used for dessert which maybe eaten raw, cooked or processed form. Eg. Pineapple, cashew, mago

Classification Of Crops Base On Purpose

- ❑ **Ornamentals**- plants cultivated mainly for their aesthetic value,

Classification of ornamentals

- ❖ **Cutflowers**- grown for its flowers. Ex. Roses
- ❖ **Cut foliage**- foliage provides background in floral arrangement. Eg. Ferns, palmera



Classification Of Crops Base On Purpose

- ❖ **Flowering pot plants-** plants grown in containers for their flowers usually used for display. Eg. poinsettia
- ❖ **Landscape plants-** for landscaping purposes. Eg. White grass, song of india



Classification Of Crops Base On Purpose

❖ **Foliage plants-** for attractive foliage, maybe grown indoor or outdoor for decoration. Eg. Begonia, philodendron

❖ **Turf-** used in lawns or greens. Ex. Bermuda grass and carabao grass



Practical classification

Growth duration

Annual

Biennial

Perennial

Stem type

Herbaceous

Herbs

Vines

Woody

Trees

Shrubs

Lianas

Growth form

Erect

Decumbent

Creeping

Climbing

Adaptation

Temperature

Temperate

Tropical

Light

Sciophyte

Heliophyte

Habitat

Terrestrial

Aquatic

Halophyte

Epiphyte

General Classification Of Crops

□ According to growth habit

- ❖ **Herbs**- succulent plants with self supporting stems, with soft stems.
- ❖ **Vines**- succulent or woody plants (lianas) without self supporting stems.
- ❖ **Trees**- with single central stem to which branches are attached, usually taller than shrub.

General Classification Of Crops

□ According to life cycle

- ❖ **Annuals**- complete their life cycle in 1 year or less eg. Squash
- ❖ **Biennials**- plants ordinarily require 2 years or at least part of 2 growing seasons with a dormant period between growth stages to complete their life cycle eg. Carrot, cabbage, celery
- ❖ **Perennials**- plants that do not die after flowering but live year to year eg. trees

General Classification Of Crops

□ According to mode of reproduction

❖ **Sexual**- plants that develop after undergoing processes of meiosis and fertilization in the flower to produce a viable embryo in the seed.

❖ **Asexual**- plants that are produce by any vegetative means not involving meiosis and the union of gametes.

General Classification Of Crops

□ According to light intensity requirement

❖ Heliophytes

- Sun-loving (light saturation at 5000 foot candles)
- Ex. Banana, chrysanthemum, corn, cowpea, cucurbits, eggplant, papaya, peanut, sugarcane.

❖ Sciophytes

- shade-loving (light saturation at 500 foot candles)
- Ex. Ginger, Ferns, coffee

General Classification Of Crops

□ Special types

- ❖ **Parasites**- parasitic, sucking roots
- ❖ **Epiphytes**- grow upon other plants (orchids) but not parasitic
- ❖ **Saprophytes**- grow in places rich in decaying organic substance.

Special Groups



- ❑ **Green manure-** a crop that is plowed under while still green and growing to improve the soil eg. Sesbania
- ❑ **Cover crops-** any crop grown to provide soil cover, prevent soil erosion (wind or water), improve soil, and control weeds.

Special Groups

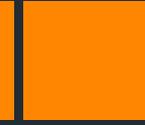


- ❑ **Companion crops-** crop sown for another crop and harvested separately. The combination benefits either or both the crops.
- ❑ **Trap crop-** a crop which is planted to protect the main crop from pest by attracting the pest to the crop itself and later destroying it.

Special Groups



- ❑ **Catch crop**- a short seasoned crop (pechay) grown immediately after failure of the main crop (rice) to utilize residual resources.
- ❑ **Soilage**- grasses that are grown, cut and directly fed to animals.
- ❑ **Silage**- grasses grown, cut, fermented, and preserved before being fed to animals.



REVIEW QUESTIONS

QUESTION No.1

The other term for grain crops is derived from which Grain Deity?

- a. The Egyptian God Neper**
- b. The Greek Goddess Demeter**
- c. The Egyptian Goddess Nepit**
- d. The Roman Goddess Ceres**

QUESTION No. 2

**Cowpea is an example of family Leguminoseae.
Leguminoseae is synonymous to:**

- a. Papilionoideae**
- b. Fabaceae**
- c. Pedaliaceae**
- d. All of the above**

QUESTION No. 3

Grass family is the same with

I. Gramineae II. Poaceae III. Monocotyledonae

- a. I and II is True**
- b. I and II is False**
- c. III is True**
- d. all of the above**

QUESTION No. 4

Which of the following crops is not under the family Leguminosae?

- a.** *Pachyrrhizus erosus*
- b.** *Psophocarpus tetragonolobus*
- c.** *Sesbania grandiflora*
- d.** *Sesamum indicum*

QUESTION No. 5

Which of the following root crops thrives best in cool condition particularly in the highlands of Benguet, Mt. Province?

- a. potato**
- b. carrot**
- c. cassava**
- d. A & B**

QUESTION No. 6

Pomology is the study of fruit crops whereas olericulture is the study of _____.

- a. ornamental crops**
- b. plantation crops**
- c. vegetable crops**
- d. oil crops**

QUESTION No. 7

A leguminous crop that produces pods and produces edible fleshy roots.

- a. *Arachis hypogaea***
- b. *Psophocarpus tetragonolobus***
- c. *Pachyrrhizus erosus***
- d. *Cajanus cajan***

QUESTION No. 8

Most economically important plants are:

- a. Xerophytes**
- b. Hydrophytes**
- c. Mesophytes**
- d. Halophytes**

QUESTION No. 9

A fruit with undesirable odor. It is commonly produced in the island of Mindanao

- a. *Durio zibethinus***
- b. *Lansium domesticum***
- c. *Artocarpus altilis***
- d. *Averrhoa bilimbi***

QUESTION No. 10

Which does not belong to this group of fruit crops?

- a. lanzones**
- b. dragon fruit**
- c. durian**
- d. rambutan**

QUESTION No. 11

A crop that requires support for upright growth is vine if non-woody, what if woody

- a. determinate**
- b. prostrate**
- c. liana**
- d. shrubs**

QUESTION No. 12

In the folk song “Bahay Kubo”, how many crops under Leguminoseae family are mentioned?

- a. 4**
- b. 5**
- c. 6**
- d. 7**

QUESTION No. 13

Which among the following are the two agronomical/ field crops that are mentioned in the folk song “Bahay Kubo”?

- a. batao at patani**
- b. singkamas at linga**
- c. mani at linga**
- d. sigarilyas at mani**

QUESTION No. 14

Which of the following crops can be categorized as fruit and vegetable crops?

- a.** *Carica papaya*
- b.** *Artocarpus heterophyllus*
- c.** *Tamarindus indicus*
- d.** A & B

QUESTION No. 15

Which of the following crops can be categorized as agronomic and horticultural crops under Philippine condition?

- a.** *Vigna radiata*
- b.** *Carica papaya*
- c.** *Zea mays*
- d.** A & C

QUESTION No. 16

Which of the following crops differs in terms of cultural management practices?

- a.** *Solanum melongena*
- b.** *Solanum tuberosum*
- c.** *Capsicum frutescens*
- d.** *Lycopersicon esculentum*

QUESTION No. 17

This is an annual crop and use as the staple food of many Filipinos. The national research institute for this crop is located in Science City of Munoz, Nueva Ecija.

- a. *Oryza sativa***
- b. *Zea mays***
- c. *Vigna radiata***
- d. *Arachis hypogaea***

QUESTION No. 18

**The crops below are under the Fabaceae family.
This crop has a seed which looks like the head of
the chicken.**

- a. *Cajanus cajan***
- b. *Phaseolus lunatus***
- c. *Cicer arietinum***
- d. *Vigna sinensis***

QUESTION No. 19

It is considered by many people in Southeast Asia as the “king of fruits” because of its large size, strong odor, and formidable thorn-covered husk.

- a.** *Durio zibethenus*
- b.** *Lansium domesticum*
- c.** *Artocarpus altilis*
- d.** *Averrhoa bilimbi*

QUESTION No. 20

In English word, what are the solanaceous crops mentioned in the folk song “Bahay Kubo”?

- a. Sweet pepper and hot pepper**
- b. Sweet potato and white potato**
- c. eggplant and tomato**
- d. all crops mentioned below**

QUESTION No. 21

The crop that twine due to certain parts of the crop that touches an external stimulus the tendency is to wrap or go around the stimulus.

- a. Mungbean**
- b. Soybean**
- c. Peanut**
- d. Longbean**

QUESTION No. 22

Bittergourd is a plant that their shoots continue to grow until the plant senescences. The type of growth habit is_____.

- a. Indeterminate**
- b. Perennial**
- c. Determinate**
- d. Biennial**

QUESTION No. 23

The crops below are examples of grass family.
Majority of these crops mature in 105-120 days.
What crop has longer maturity?

- a.** *Triticum aestivum*
- b.** *Oryza sativa*
- c.** *Zea mays*
- d.** *Saccharum officinarum*

QUESTION No. 24

It is the primary ingredient in the preparation of breads. This crop is imported from temperate countries

- a. *Triticum aestivum***
- b. *Sorghum bicolor***
- c. *Solanum tuberosum***
- d. *Glycine max***

QUESTION No. 25

Select crops which can be classified both as an organic crops and horticultural crops based on their uses under Philippine condition

- a. Rice**
- b. Sorghum**
- c. Mungbean**
- d. Peanut**

QUESTION No. 26

Grass family is the same with (I) Graminae (II) Poacea (III) Monocotyledonae

- a. I and II are true**
- b. I and II are false**
- c. III is true**
- d. All are true**

QUESTION No. 27

An example of pulse crop is:

- a. Cowpea**
- b. Squash**
- c. Tomato**
- d. Eggplant**

QUESTION No. 28

Among these vegetables which is not under the family Leguminosae

- a. *Phaseolus lunatus***
- b. *Vigna unguiculata***
- c. *Lagenaria siceraria***
- d. *Phaseolus vulgaris***

QUESTION No. 29

These are annual herbaceous plants that are grown on the farm under extensive or large scale culture

- a. Agronomic or field crops**
- b. Ornamental crops**
- c. Vegetable crops**
- d. Pomological crops**

QUESTION No. 30

Example of plant that has tendrils

- a. Squash**
- b. Cowpea**
- c. Eggplant**
- d. Tomato**

QUESTION No. 31

A plant capable of growing in salty soils

- a. Halophytes**
- b. Sciophytes**
- c. Heliophytes**
- d. None of the above**

QUESTION No. 32

Which is not a root crop?

- a. Sweet potato**
- b. Yam**
- c. Potato**
- d. Cassava**

QUESTION No. 33

Which does not belong to the group?

- a. Centrosema**
- b. Siratro**
- c. Stylosanthes**
- d. Paragrass**

QUESTION No. 34

Which is not under the family Leguminosae?

- a.** *Phaseolus lunatus*
- b.** *Vigna unguiculata*
- c.** *Lagenaria siceraria*
- d.** *Phaseolus vulgaris*

QUESTION No. 35

An example of small fruit is

- a. Pineapple**
- b. Lanzones**
- c. Tamarind**
- d. Duhat**

REFERENCES



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