

# Methods of Plant propagation

## 1. Propagation by seeds

## 2. Vegetative propagation

- Natural Methods ----- root , stem, leaf
- Artificial Methods ---- cutting
  - budding
  - grafting
  - layering
  - micropropagation
    - by tissue culture

# NATURAL VEGETATIVE PROPAGATION

New plants are formed from the following structures:

- **STEMS**            eg runners in strawberries
- **ROOTS**            eg root tubers in dahlias
- **LEAVES**            eg cacti, bryophyllum

# Natural Vegetative Propagation

- **It is a form of asexual reproduction in plants.**
- **It does not involve flowers, pollination and seed production. Instead, a new plant grows from a vegetative part, usually a stem, of the parent plant. However, plants which reproduce asexually almost always reproduce sexually as well, bearing flowers, fruits and seeds**

- **Vegetative reproduction from a stem usually involves the buds. Instead of producing a branch, the bud grows into a complete plant which eventually becomes self-supporting. Since no gametes are involved, the plants produced asexually have identical genomes and the offspring form what is known as a clone.**

# Natural vegetative propagation through stem

Bougainvillea



HIBISCUS  
(*Hibiscus rosa sinensis*)



*Allamanda cathartica*



JASMINE (*Jasminum officinale*)



IXORA (*Ixora coccinea*)



ROSE (*Rosa macdub*)



- In some cases of vegetative reproduction, the structures involved also become storage organs and swell with stored food, e.g. potatoes.
- The principal types of vegetative reproduction structures are bulbs, corms, rhizomes and runners.

# Natural vegetative propagation by **stem**

1. Bulb
2. Corm
3. Rhizome
4. Runners
5. Suckers
6. Offset

# 1. BULBS

Bulbs consist of very short stems with closely packed leaves arranged in concentric circles round the stem. These leaves are swollen with stored food e.g. onion. A terminal bud will produce next year's flowering shoot and the lateral (axillary) buds will produce new plants.



**bulbs**



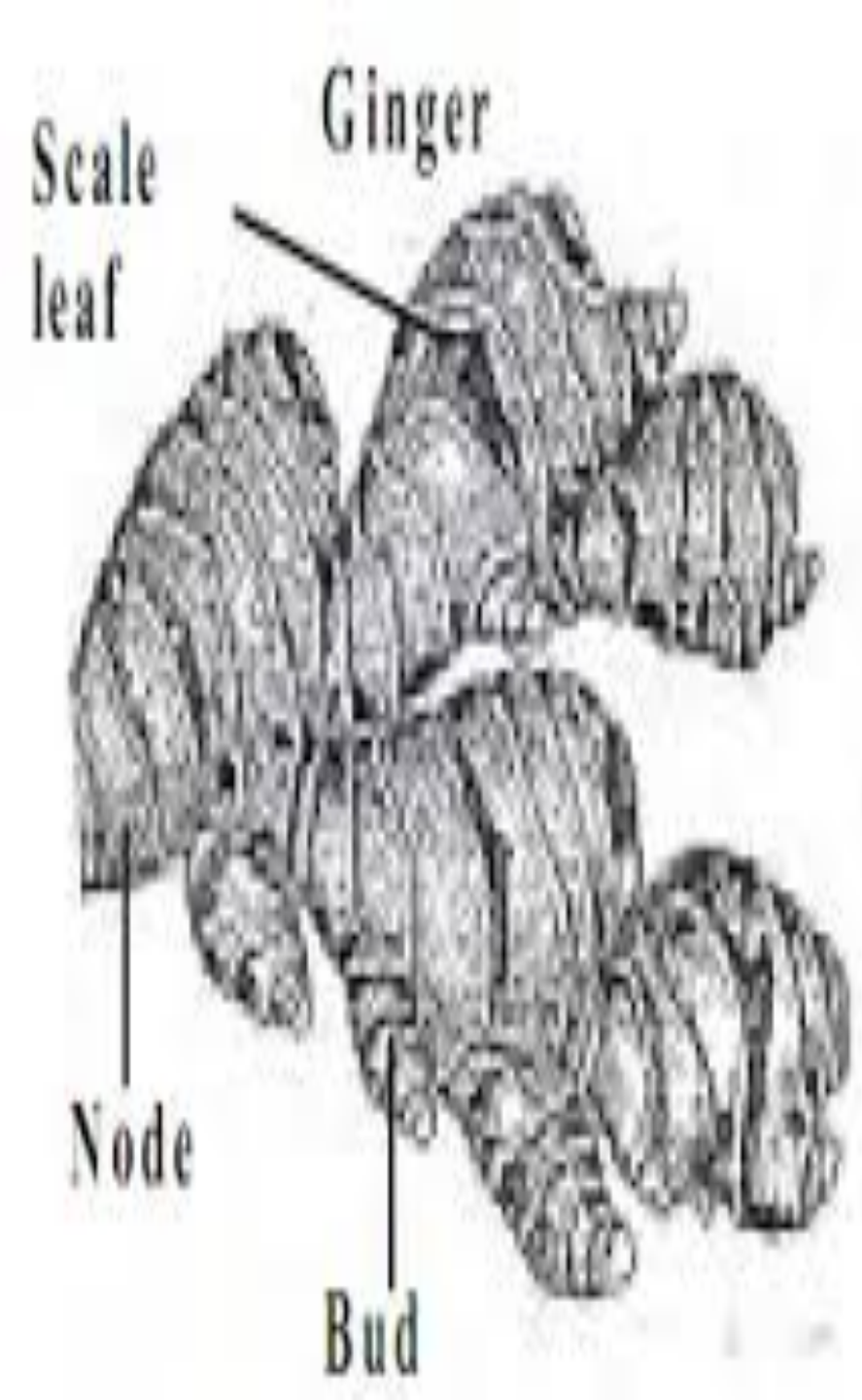
## 2. CORMS

**Corms also have a short stem but in this case it is the stem itself which swells and stores food. The circular leaves form only papery scales. As with bulbs, the terminal bud grows into a flowering shoot and the lateral buds produce new plants**



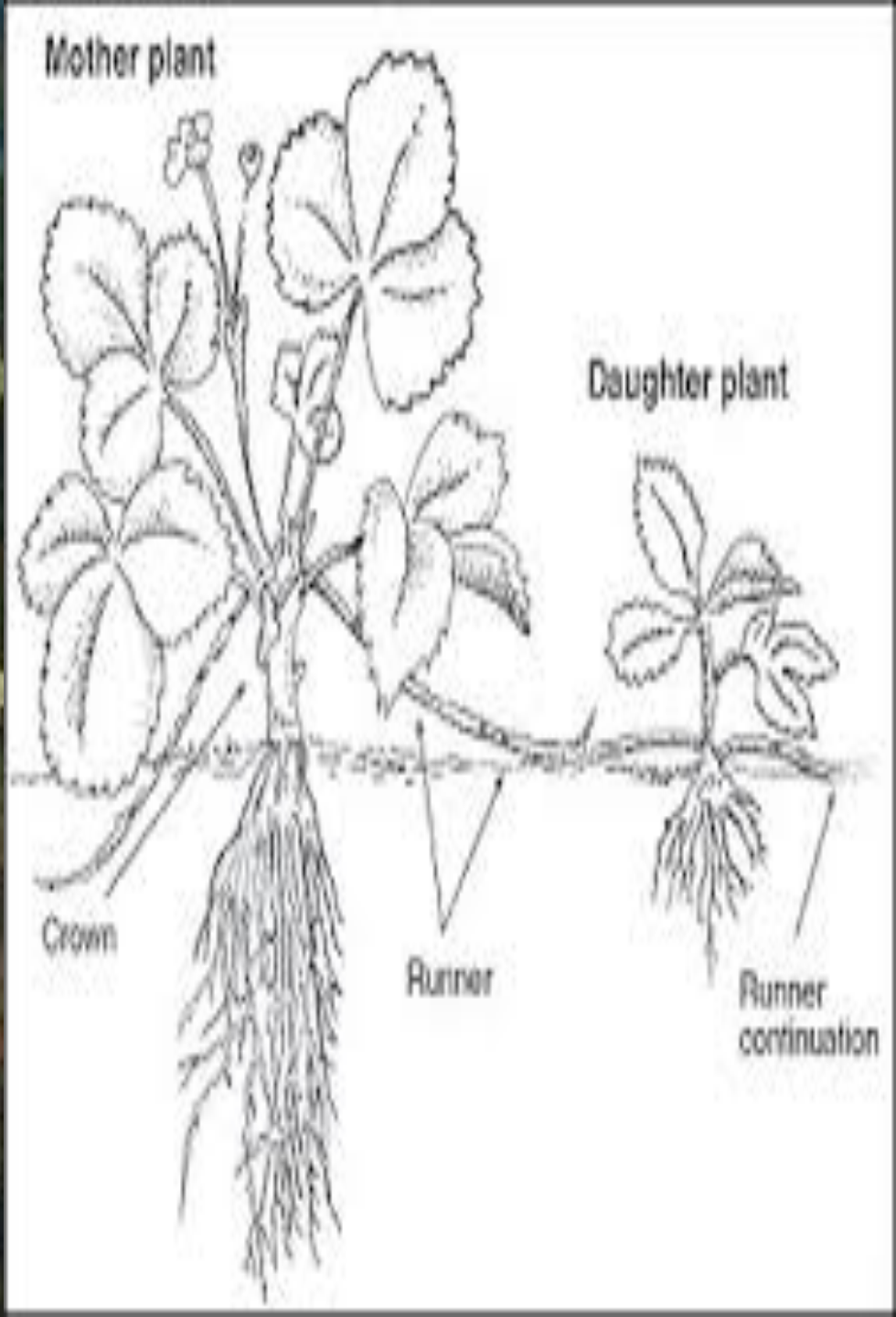
# 3. RHIZOMES

**Rhizomes are stems which grow horizontally under the ground. In some cases the underground stems are swollen with food reserves e.g. iris. The terminal bud turns upwards to produce the flowering shoot and the lateral buds may grow out to form new rhizomes**



# 4. RUNNERS

**Runners are also horizontal stems growing from the parent plant, but they grow above ground. When their terminal buds touch the ground they take root and produce new plants.**



# 5. SUCKERS

**Suckers of mint and Chrysanthemum are somewhat similar to runners but with shorter internodes**

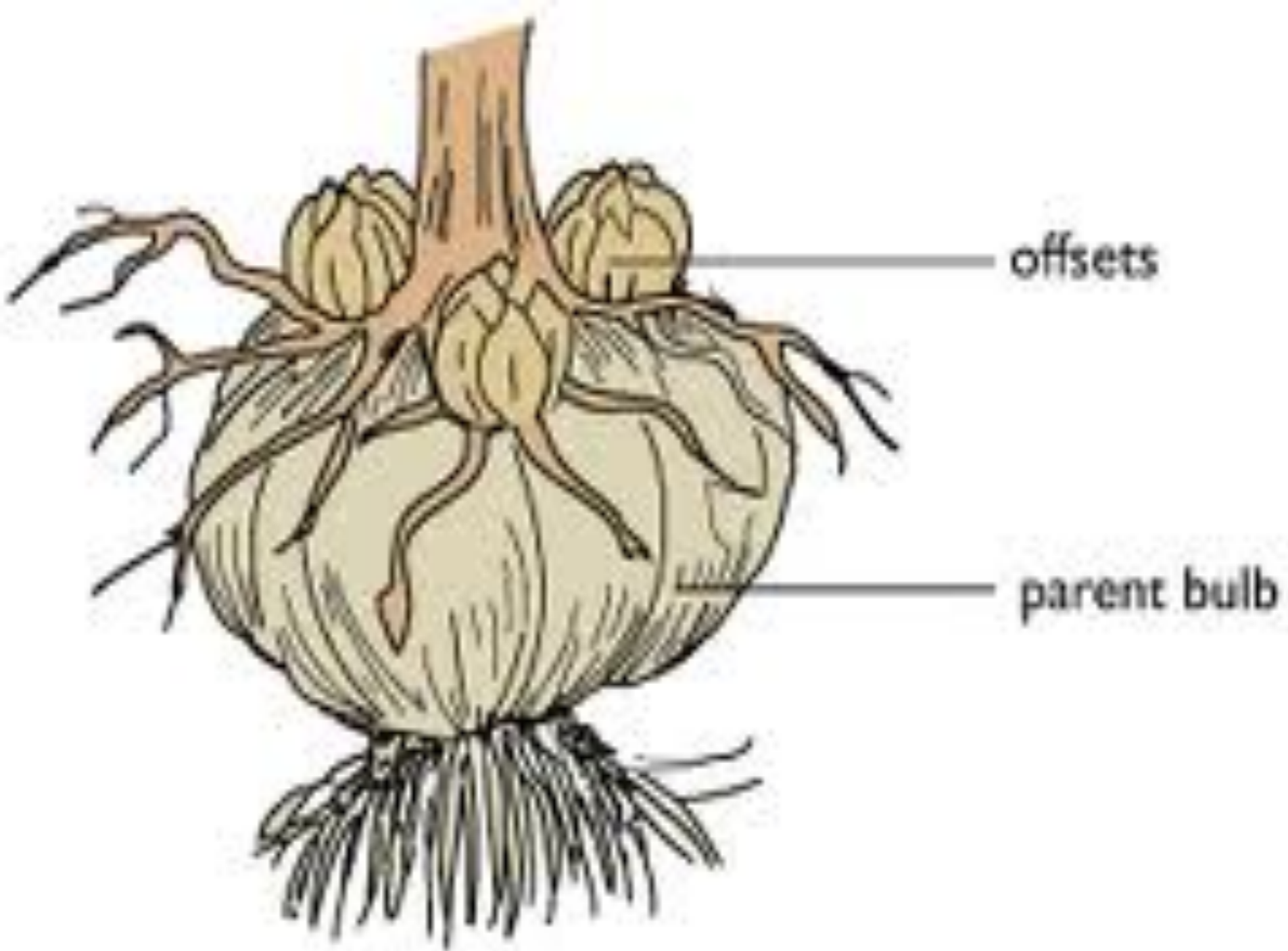




Fig. 34.4 Suckers of *Chrysanthemum*

# 6. OFFSETS

- An offset or offshoot is **new shoot, branch or stem or a whole young rooted plant produced by the main stem of the parent , usually starting from an axillary-bud at the plant base or from a rhizome or tuber**



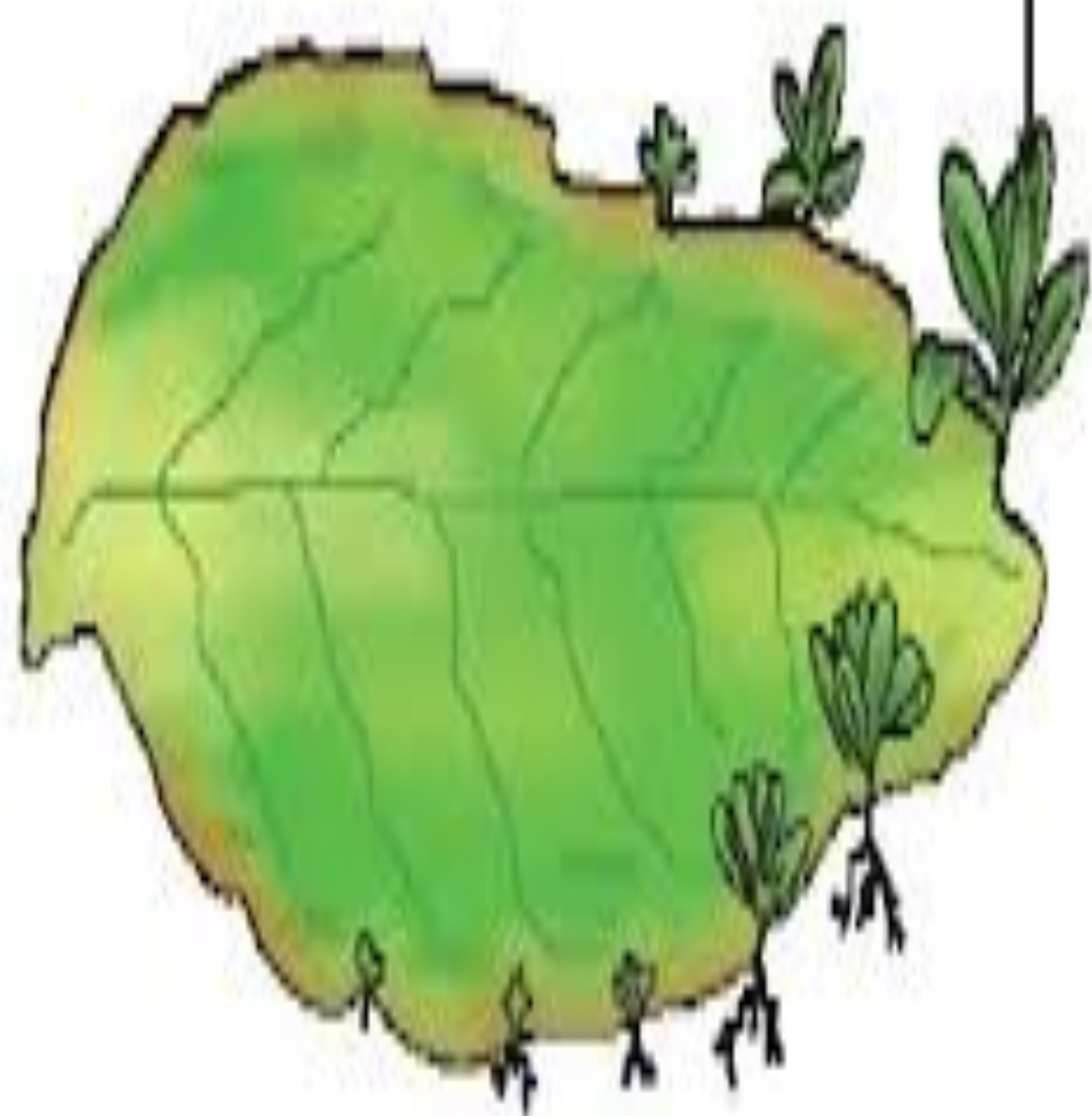
# Natural vegetative propagation by **leaves**

## Plantlets on leaf

- **Some plants produce small plants on the side of their leaves**
- **When they reach a certain size, they fall off & grow into new plants**

**Eg. Cacti, Bryophyllum**

Buds



KALANCHOE (Bryophillum)



AFRICAN VIOLET (Saintpaulia ionantha)



# Natural vegetative propagation by **Roots**

- Root tubers of Dahlia

