Propagation of fruit plants

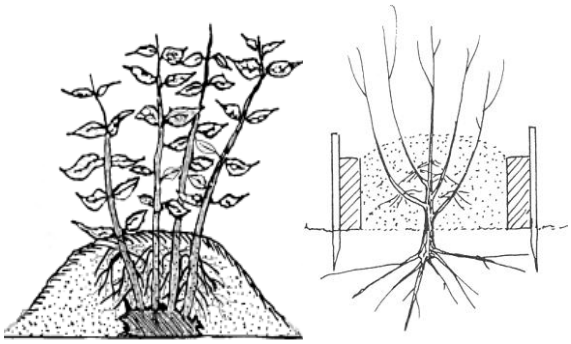
Main methods of propagation

- **Sexual – seed → stratification → yearling (seedling)**
  - **for some rootstock cultivars**
  - **for breeding**
- **Asexual (vegetative, clonal) – from stem or root part**
  - **for some rootstocks**
  - **scions**
- **Micropropagation**
  - **for getting virus free propagation material**
  - **for very quick propagation of new varieties**

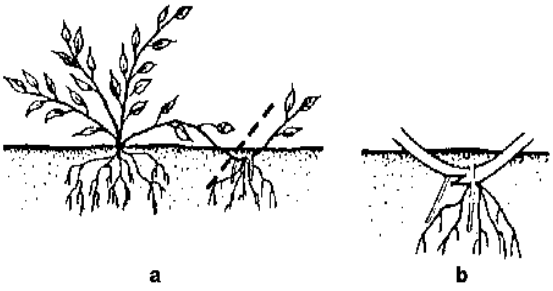
Asexual propagation methods

- **Using plant parts rooted by themselves**
  - **Runner daughter plant – strawberry**
  - **Rooted suckers and tillers – blackberry, raspberry**
- **Crown division – each subdivision has to be at least one bud and some roots**
- **Rooting of plant parts**
  - **Layerage – first rooting than severed from the mother plant**
  - **Cuttage – first severed from the mother plantle than rooted**
    - **leafy or softwood, semihardwood, hardwood cuttings**
    - **root and stem (shoot) cuttings**
    - **according to the method of severing: simple, torned. „hammer like"**

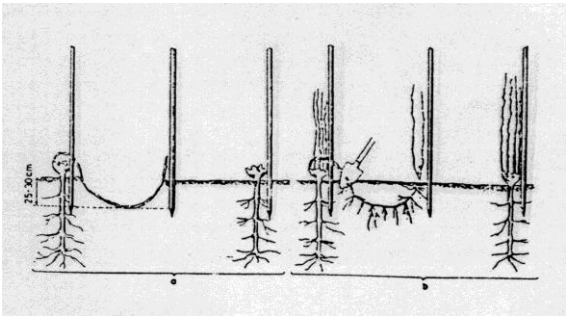
Mound layering



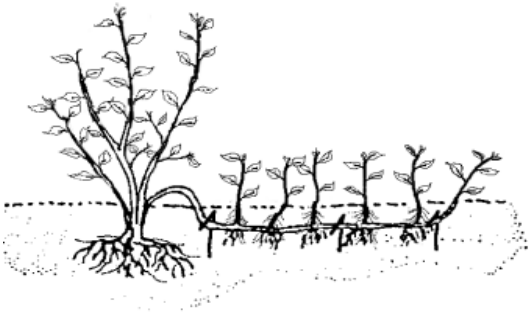
Tip layering



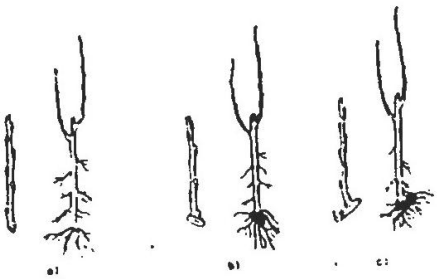
Layering of grape



Trench layering



Air layering



Dugványtípusok és gyökérképződés
a) egyszerű, *b)* tépett, *c)* kalapácsos dugvány

Asexual propagation methods

- Using plant parts rooted by themselves
- Crown division
- Rooting of plant parts
- Uniting two (or more) plant parts
- Grafting
- Budding

1) graftings = stock + scion
2) compatibility
3) affinity
4) matching surfaces, cambiums
5) grafting in place of orchard or nursary or bench grafting

Reasons for using stocks

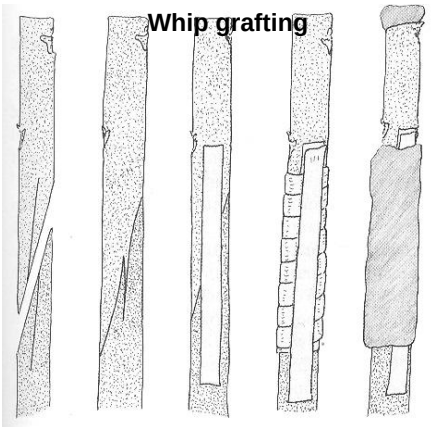
- forming root system
- resistance to diseaeses and pests
- controlling size – apple M26, M9, M27; pear – quince; sweet and sour cherries
- forming trunk (apricot, plum)
- lime tolerance: peach – sour almond stock
- soil physical properties: apricot – Prunus cerasifera for clay soils, wild apricot for sandy soils
- salt tolerance
- cold tolerance

Asexual propagation methods

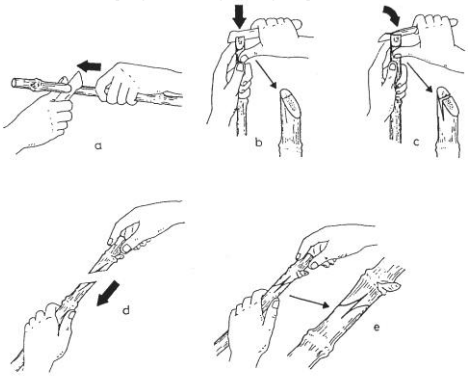
- Using plant parts rooted by themselves
- Crown division
- Rooting of plant parts
- Uniting two (or more) plant parts
- Grafting

– Whip (English, palm) grafting
– Cleft grafting
– Saw-Kerf grafting
– Bark grafting
– Grafting with mechanical knives

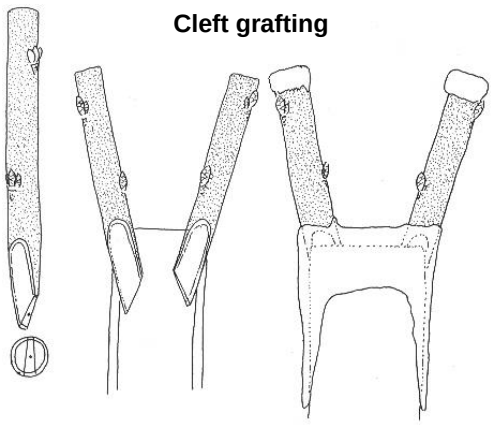
Whip grafting



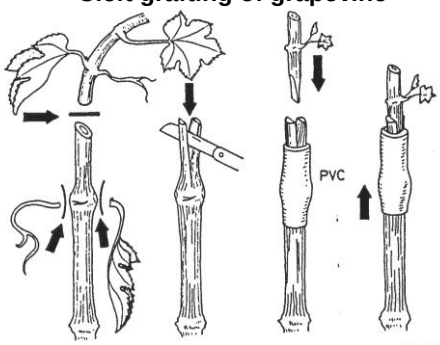
Whip grafting of grapewine



Cleft grafting



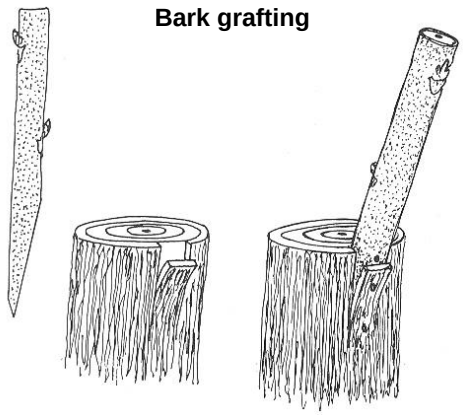
Cleft grafting of grapevine



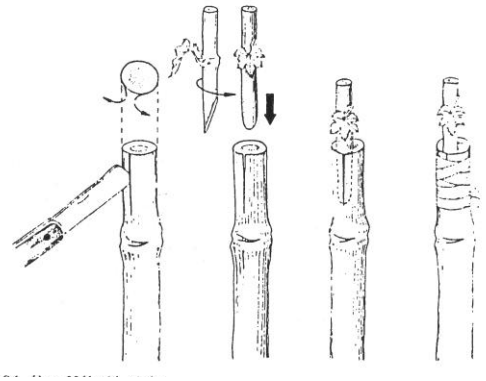
82. ábra Hasítékos ékoltás (a javított *Czeiner*-féle, vagy *Leskó*-féle PVC hüvelyes zöldoltás) folyamata

Saw-Kerf grafting

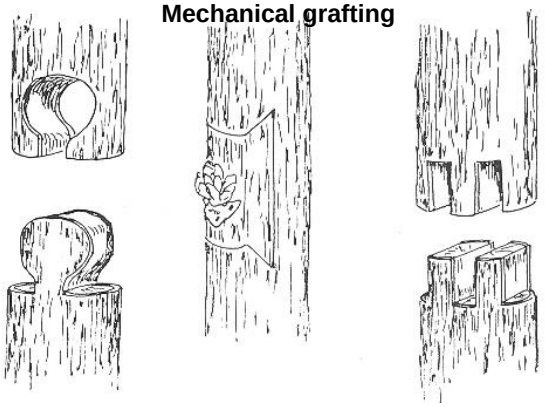
Bark grafting



Bark grafting of grapevine



Mechanical grafting



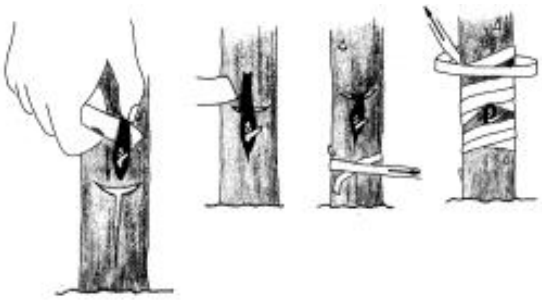
Asexual propagation methods

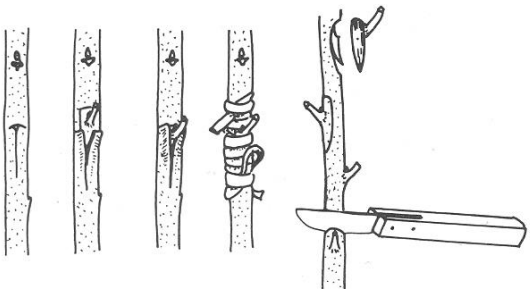
- Using plant parts rooted by themselves
- Crown division
- Rooting of plant parts
- Uniting two (or more) plant parts
- Grafting
- Budding

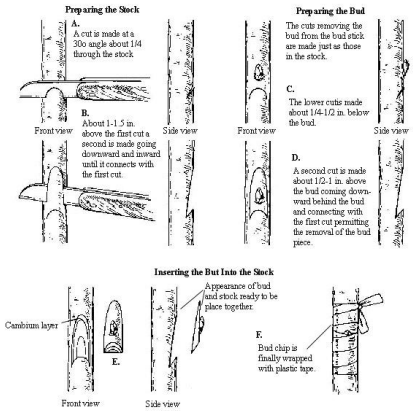
– according to its time: dormant budding, June budding

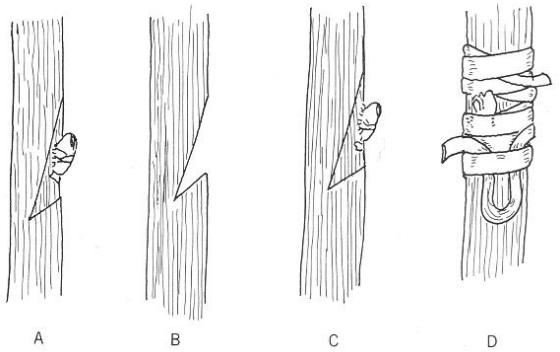
– according to its method: T (shield) budding, chip budding

T budding –using bud shield

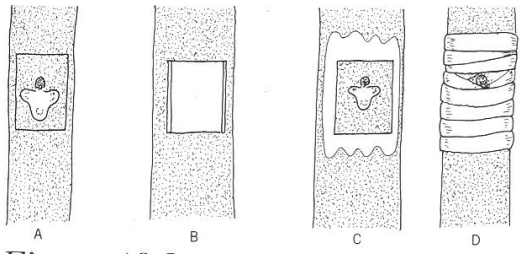








Patch grafting



Which plant – what method?

- **grape – whip grafting, hardwood cuttings**
- **pome fruits: stock – mound layering; scion – whip grafting, dormant budding**
- **stone fruits: stock – seeding or layering; scion – dormant budding**
- **goosberry, currents: hurdwood cuttings or grafting**
- **blackeberry, raspberry – rooted suckers**
- **strawberry – runners**
- **hazelnut – layering, hardwood cuttings**
- **walnut, chestnut, almond – dormant budding**