

Plant cloning

Advantages

Cloning can lead to selected crops, with perfect size and nutritious value; maximum output in every harvest; DNA combination in order to select specific features of different plants (color, shape, vitamins, and minerals). Cloning can produce high yielding crops. A cloned plant can yield a thousand new plants from one parent plant. This means that farmers can produce more crops without a lot of seeds.

However, it promotes homozygosity in the absence of linkage, as in sexual reproduction. Can lead to either desirable or undesirable effects, e.g., production of rice enhancement resulting in plants more susceptible to disease and less successful materials in the evolution ladder. For example, cloning can produce drought and pest resistance crops. Cloning can also be very much welcome, producing crops with higher nutrition in them, for instance, Philippines' *Golden Rice*, material which has high vitamin A content).

Cloning can lead to selected crops with perfect size and high nutritious value; maximum output in every harvest. DNA material can be manipulated in order to select specific features of different plants (color, shape, vitamins, and minerals).

Cloning a plant means you can choose the best plants to clone. An entire crop of healthy, prosperous plants can be cloned from one strong parent plant.

Cloned plants grow at the same rate, so harvesting can become streamlined.

So far, the FDA has stated that cloned food would be perfectly safe for humans to eat. They have not, however, finalized a ruling to allow cloned food on the market.

I have deliberately emphasized the advantages. You can deduce the undesirable, negative effects of cloning!

Advantages of Budding/Grafting

Change varieties or cultivars. An older established orchard of fruiting trees may become obsolete as newer varieties or cultivars are developed. The newer varieties may offer improved insect or disease resistance, better drought tolerance, or higher yields. As long as the scion is compatible with the rootstock, the older orchard may be top worked using the improved variety or cultivar.

Optimize cross-pollination and pollination. Certain fruit trees are not self-pollinating; they require pollination by a second fruit tree, usually of another variety. This process is known as cross-pollination. Portions of a tree or entire trees may be pollinated with the second variety to ensure fruit set.

Take advantage of particular rootstocks. Compared to the selected scion, certain rootstocks have superior growth habits, disease and insect resistance, and drought tolerance.

Benefit from interstocks. An interstock can be particularly valuable when the scion and rootstock are incompatible. In such cases, an interstock that is compatible with both rootstock and scion is used.

Perpetuate clones. Clones of numerous species of conifers cannot be economically reproduced from vegetative cuttings because the percentage of cuttings that root successfully is low. Many can be grafted, however, onto seedling rootstocks.

Produce certain plant forms. Numerous horticultural plants owe their beauty to the fact that they are grafted or budded onto a standard, especially those that have a weeping or cascading form.

Increase the growth rate of seedlings. The seedling progeny of many fruit and nut breeding programs, if left to develop naturally, may require 8 to 12 years to become fruitful. However, if these progeny are grafted onto established plants, the time required for them to flower and fruit is reduced dramatically. Another way to increase the growth rate of seedlings is to graft more than one seedling onto a mature plant. Using this procedure as a breeding tool saves time, space, and money.