# The Importance of Payvandtags and their Features of Reproduction

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**ABSTRACT**

*The article provides information about the importance and advantages of fruit trees in the construction of modern intensive orchards and intensive technologies of their propagation.*

**KEYWORDS:** *Fruit growing, grafting, fruit, pest, plant tissue, in vitro, method of reproduction*.

**Introduction.** The importance of grafting in the construction of modern intensive orchards is enormous. Indicators such as the height of fruit trees, yield time, short branching, longevity, resistance to adverse natural conditions, yield, fruit quality, and cost-effectiveness of the garden depend in many respects on the characteristics of the graft(Sanaev, Kh, & Kh, 2021).

The selected graft also plays an important role in the formation of seedlings resistant to various diseases and pests, as well as adverse climatic conditions. To date, in intensive horticulture, much attention is paid to the cultivation of cultivars of fruit crops in the form of small, semi-small trees by connecting them to low-growing grafts. (Sanaev, 2014).

Trees grown in small grafts enter the crop early. Early access to the crop will limit their growth. In addition, the plastic substances that accumulate in the leaves are mainly used for crop formation (up to 60%) and the rest for the vegetative parts. (САНАЕВ, ХАЛМИРЗАЕВ, ТОЖИБАЕВА, & ЭРГАШЕВ, 2018).

The yield quality of cultivated fruit crops attached to low-growing grafts is improved. The fruits are large due to the fact that in low-growing grafts the ratio between the leaf surface and the main (skeletal) parts is very convenient and the path of movement of nutrients is very short (Botirov & Arakawa, 2021). Because the branches of low-growing trees are compact, light falls well on the fruit. As a result, the fruits accumulate a lot of sugar, their taste and color improve, the harmful effects of wind are reduced due to the fact that the trees grow short and thickly planted, resulting in less fruit shedding (Botirov, Arakawa, & Zhang, 2021).

The cost of the fruit of low-growing trees is lower than the cost of the fruit of strong-growing trees, 1.5 - 2.0 times less labor is required to produce 100 kg, and the yield is 1.5 - 2.0 times higher than that of ordinary orchards. The downside is that small fruit trees do not live very long, often. It is wrong to look at it from this point of view because dwarf fruit trees produce the same amount of fruit as tall-fruited fruit trees, which live 45-50 years during their 25-30 year life cycle. At the same time,

gardening, built from stunted fruit trees, allows you to quickly replace old varieties with valuable new varieties. If the trees do not produce a lot of fruit every year and the branches do not grow strong, the trunks of small trees will not grow and as a result, will live a long time, 25-30 years. (Хонкулов & Холмирзаев, 2020).

Small tree orchards have a number of positive features, such as early harvest, high yield, quality of fruits, ease of care for trees, and so on.

When connected to low-growing grafts, fruit seedlings are planted up to 2000–3000 bushes per hectare and yield up to 50-60 tons per hectare.

Accelerated grafting of fruit crops is carried out mainly in the laboratory by vegetative means, ie by microtonal method of obtaining plant tissue.

Today, as in all areas, innovative ideas are being introduced into our lives in fruit growing.

- The word in vitro is derived from the Latin word meaning "in a bottle", "in a test tube". Vegetative propagation of plants in vitro is called microtonal propagation.
- The method of microtonal propagation of plants has a number of advantages over other traditional methods, including:
- genetically identical planting material is prepared;
- The plant (grafted) is free of viruses due to the use of healthy meristem tissue in reproduction.
- the multiplication factor is high.
- shortening of the selection process or time.
- The plant enters the reproductive development phase faster.
- There is also the possibility of propagating plants that are difficult to propagate by traditional methods.
- No large area is required for planting material.

In horticultural countries around the world, the cultivation of small and semi-small grafts of fruit crops is carried out in vitro laboratories based on advanced technologies. In general, grafting plants provides rejuvenation of grafted tissues, which contributes to the good growth of the obtained plants. In the experience of foreign countries where the fruit is grown, semi-stucco is the best graft.

This process begins with the cultivation of healthy tissues isolated from the plant under sterilized conditions in a specially prepared nutrient medium. Laboratory-grown plants grown in a special nutrient medium are initially planted in cassettes designed for seedling cultivation. It is then grown in three stages in a climate-controlled nursery. In the first stage, the nursery will receive 14 hours of light per day, humidity 90-100%, air temperature 21-260C for 21 days, in the second stage for 21 days, 14 hours of light per day, and humidity in the nursery 70-85%, air temperature 24- In the third stage, it is grown in the nursery for 90 days with 14 hours of light per day, the humidity of 50-55%, air temperature of 25-350C. In our experiments, the aim was to determine the optimum air humidity and temperature when growing promising fruit grafts such as Garnem, GF-677, Myrobalan C-29, which are used as grafts for cultivated fruit crops such as peaches, nectarines, plums, and almonds.

**Garnem** fruit graft is used as a graft for peach, nectarine, plum, and almond varieties. It is a solder that can adapt to calcareous and heavy structural soils and is resistant to iron chlorosis. It is very resistant to root nematodes. It provides an opportunity to build another peach orchard in place of the peach orchards. Garnem fruit graft is a strong graft that has a positive effect on the yield of fruit crops and fruit quality.

**GF -** 677 fruit graft - this is a hybrid of peach and almond. GF-677 is used as a good graft for some varieties of fruit graft peaches, nectarines, almonds and plums. Grafted culture has a positive effect on the yield of fruit crops. This fruit graft is a graft widely used in temperate climates. It is recommended to plant seedlings connected to this graft in the garden in the scheme 2 x 5 m, 2.5 x 5 m or 3 x 5 m, 3.5 x 5 m.

**Myrobalan C-29** fruit graft is a suitable graft for cultivars of plum and apricot. It is a rhizome that can be used in a variety of soils, including heavy structural soils. This is a standard graft that forms a crown 20% smaller than the rhizome of plum seedlings. Varieties grafted to it grow strong. Resistant to diseases such as root nematodes, root rot, Armillaria, and root cancer. It develops a moderately deep root system.

In our experiments, in the cultivation of fruit seedlings in vitro laboratories, plants grown in a special nutrient medium under laboratory conditions are first grown in the first section, then in the second and third sections in a greenhouse designed for growing special seedlings with climate control. When growing seedlings, the humidity, and temperature of the greenhouse air in each section are controlled by a set amount. In our experiments, the air temperature and humidity in the first, second and third sections of the greenhouse for growing grafted seedlings were captured in four different variants;

In the 1-th option. Air temperature 220S; 22-270S; 350S and air humidity 100%; 90 - 95%; 50 - 55%.

In the 2-th option. Air temperature 240S; 25-290S; 350S and air humidity 90%; 75 - 80%; 50 -55%.

In the 3-th option. Air temperature 260S; 26-310S; 350S and humidity of ha w 100%; 75 - 85%; 35%.

In the 4 - th option. Air temperature 280S; 28 - 330S; 350S and air humidity 90%; 70 - 75%; 50 - 55%.

The results of our study based on the above options showed that in the first and second sections, the highest rate was recorded in the second variant when grown for 21 days with 14 hours of light per day, and in the third section for 90 days. At the same time, compared to other options, the highest quality and quantity of seedlings were obtained, and the cost of seedlings was 85-90%.

**Conclusion.** The air temperature in the first section of in-vitro laboratories for fruit graft seedlings and greenhouses for growing special seedlings is 240S; humidity 90%; air temperature in the second section 25 - 290S; humidity 75 - 80%; and in the third section, ensuring that the air temperature is 350S and the humidity is 50 -55% ensures high quality seedling consumption and cost-effectiveness.

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