

THE EFFECT OF PREPARATION METHODS OF GREEN FIG CUTTINGS ON THEIR ROOTING

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Annotation: In the article shown that, the position of the fig cutting on the shoot (degree of maturity) plays a decisive role in its ability to root. Green cuttings taken from the middle and lower parts of the shoot show a high rooting rate of up to 93–97%.

Keywords: fig, green cutting, rooting, shoot, callus, rooting rate.

Introduction. Fig (*Ficus carica* L.) is one of the valuable fruit crops, and its vegetative propagation allows for the complete preservation of all agrobiological characteristics of the cultivar. The use of green cuttings is considered one of the most promising methods for reducing the time required for sapling production and obtaining high-quality plants [1–3].

However, factors such as the position of the cuttings on the mother shoot, their degree of maturity, and the number of buds they contain have a significant effect on the rooting process. In this study, the influence of preparing green fig cuttings from different parts of the shoot (lower, middle, and apical) and their structure (with 1 or 2 buds) on the rooting process - particularly on the timing of callus and root formation as well as the overall rooting rate - was investigated. The results of the experiment are presented in the following table.

Results and discussion. An in-depth analysis of the rooting of green fig cuttings shows that the data in the table reflect important patterns of plant physiology.

Table 1.

Effect of the position of green fig cuttings on the shoot and their rooting

Prepared cuttings	Position of cuttings on the shoot	Number of cuttings planted, pcs	Period of callus formation	Period of root formation	Rooting rate, %
Two-budded green cutting	Lower part	25	5 - August	16 - August	93
One-budded green cutting	Lower part	30	7 - August	15 - August	94
Two-budded green cutting	Middle part	30	9 - August	22 - August	97
One-budded green cutting	Middle part	30	10 - August	21 - August	96
Two-budded green cutting	3 nodes from the growth cone	24	-	-	15
One-budded green cutting	2 nodes from the growth cone	30	-	-	10

The fact that 93-97% of cuttings taken from this part of the shoot take root is due to their semi-lignified state. During this period, the shoots have accumulated a sufficient amount of energy for root formation and initial growth. Also, the amount of natural auxins that stimulate root development is at an optimal level. The conductive tissues (xylem and phloem) are well developed and can ensure the movement of water and nutrients.

The rooting rate of cuttings taken from the youngest branches, close to the growth cone, is very low (10-15%). This is because the cuttings are not lignified, are very thin, lose water quickly (transpiration is strong) and dry up without forming roots.

This part does not accumulate food reserves, but rather spends them on growth. At the same time, the formation of callus and roots is very difficult. Some of them could not even form callus (wound tissue).

Although green cuttings taken from both the middle and lower parts of the shoot showed high results, there were noticeable differences between them. In the cuttings taken from the lower part, callus formation occurred earlier - on August 5-7 and roots appeared on August 15-16. In contrast, in the cuttings taken from the middle part, callus formation was observed on August 9-10, and roots appeared on August 21-22, that is, later. Accordingly, the rooting rate of cuttings taken from the middle part was slightly higher (96-97%) compared to those taken from the lower part (93-94%).

Green cuttings taken from the lower part of the shoot begin the rooting process more quickly, but those from the middle part, although developing somewhat more slowly, ultimately show a higher survival and rooting percentage. This can be explained by the "golden mean" principle: cuttings from the middle part are sufficiently mature while still maintaining a high level of cell division and new tissue formation activity.

The presence of two buds (axillary buds) and leaf axils doubles the natural source of hormones (auxins) that stimulate root formation in the cutting. In addition, these cuttings contain a larger amount of reserve nutrients, which contributes to faster callus formation. Although this does not significantly affect the final rooting percentage, it plays an important role in accelerating the process.

Conclusion and Recommendations. From the experiment, it can be concluded that the position

of the fig cutting on the shoot (degree of maturity) plays a decisive role in its ability to root. Green cuttings taken from the middle and lower parts of the shoot show a high rooting rate of up to 93–97%. Cuttings taken from the apical part of the shoot (growth cone) almost do not form roots (10–15%). The number of buds (one or two) does not have a significant effect on the final rooting percentage.

Based on the above findings, it is recommended to use one- or two-budded green cuttings taken from the middle part of the shoot for fig propagation. It is also advisable to plant green cuttings taken from the lower part of the shoot.

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